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MASSACHUSETTS
HIGHWAY COMMISSION

YEAR ENDING NOVEMBER 30

1908

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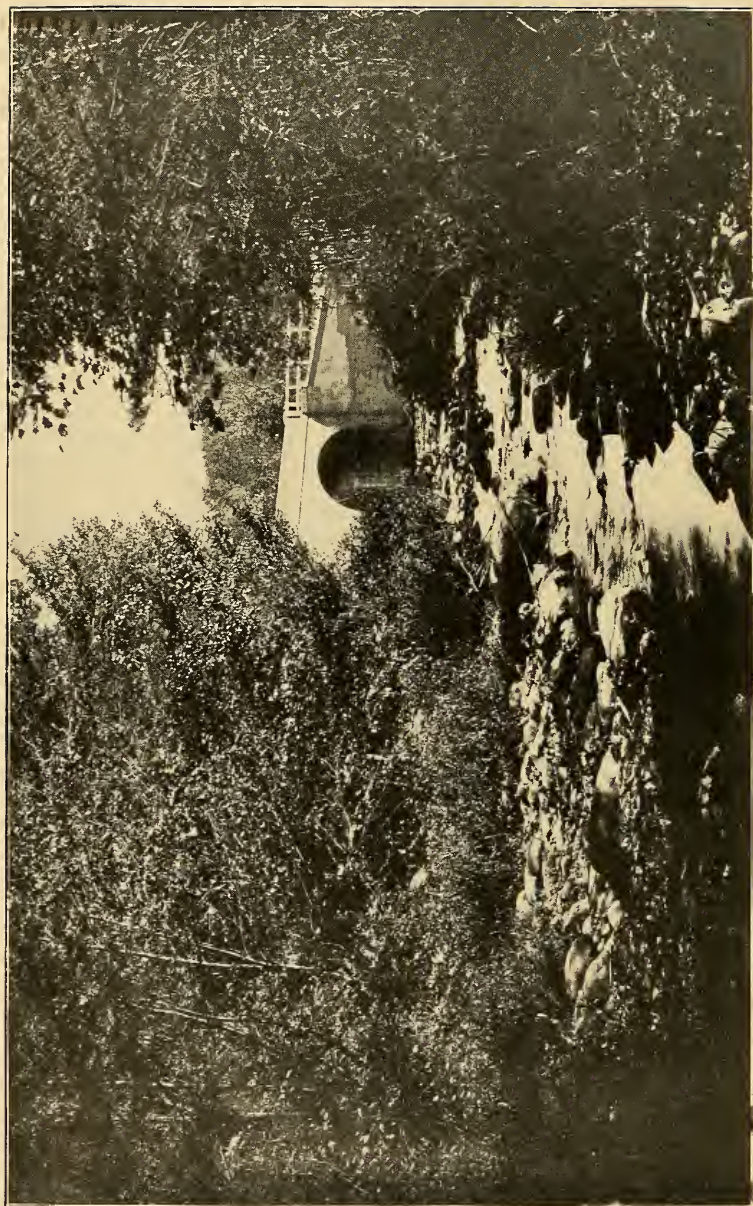
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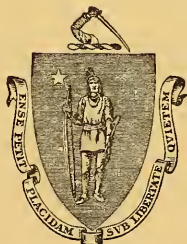
SIXTEENTH ANNUAL REPORT
OF THE
MASSACHUSETTS
HIGHWAY COMMISSION,

FOR THE FISCAL YEAR ENDING NOVEMBER 30, 1908.

PART I. — STATE HIGHWAYS AND MOTOR VEHICLES.

PART II. — SUPERVISION OF TELEGRAPH AND TELEPHONE
COMPANIES.

JANUARY, 1909.



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CHAPEL

APPROVED BY

THE STATE BOARD OF PUBLICATION.

The Commonwealth of Massachusetts.

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled.

The undersigned commissioners, appointed under the provisions of chapter 476 of the Acts of 1893 and of chapter 474 of the Acts of 1900, herewith submit, in Part I., their sixteenth annual report, in accordance with the provisions of chapter 47 of the Revised Laws, and, in Part II., their third annual report relative to their supervision of telegraph and telephone companies, under the provisions of chapter 433 of the Acts of 1906; both reports being for the fiscal year ending Nov. 30, 1908.

HAROLD PARKER.
JOHN H. MANNING.
WM. D. SOHIER.

BOSTON, MASS., Jan. 6, 1909.

PART I.

ANNUAL REPORT OF THE MASSACHUSETTS HIGHWAY COMMISSION.

Under the provisions of chapter 446 of the Acts of the year 1907 the commission had available for construction purposes during the year 1908 the sum of \$500,000, this being the first year of the five-year appropriation of \$2,500,000.

The total mileage of State roads actually constructed up to Dec. 1, 1908, is 740, of which 38 miles of road were built in 1908. There are still unfinished about 8.10 miles of road. The total cost of all work of construction of State highways from the beginning to Dec. 1, 1908, is \$6,531,539.78, including the cost of planting trees.

Since the "small town" act became a law, \$281,702.80 has been spent by the commission, and 163.9 miles of town roads have been improved. These roads are still under the control of the towns, except that under an act passed in 1908 the commission is authorized to enforce proper care by the town of all roads so built.

The number of State highway petitions received by the commission to date is 801, and 24 of these were received during the year 1908. The petitions on file in the office of the commission now include nearly all the main lines of travel throughout the State, indicating that the people themselves have a very well-defined opinion as to the public need, so far as their highway system is concerned. A glance at the map at the end of this report will show how far this system has been actually developed.

It will be seen that with the completion of the so-called Jacob's Ladder road in the town of Becket, now under contract, there will be a virtually complete improved road from

New York State line to Boston, *via* Pittsfield, Lee, Springfield and Worcester, most of which is State highway.

Another east and west thoroughfare is from Boston to Fitchburg, and southwest, through Gardner, Athol, etc., to Greenfield. This route is now well advanced toward completion.

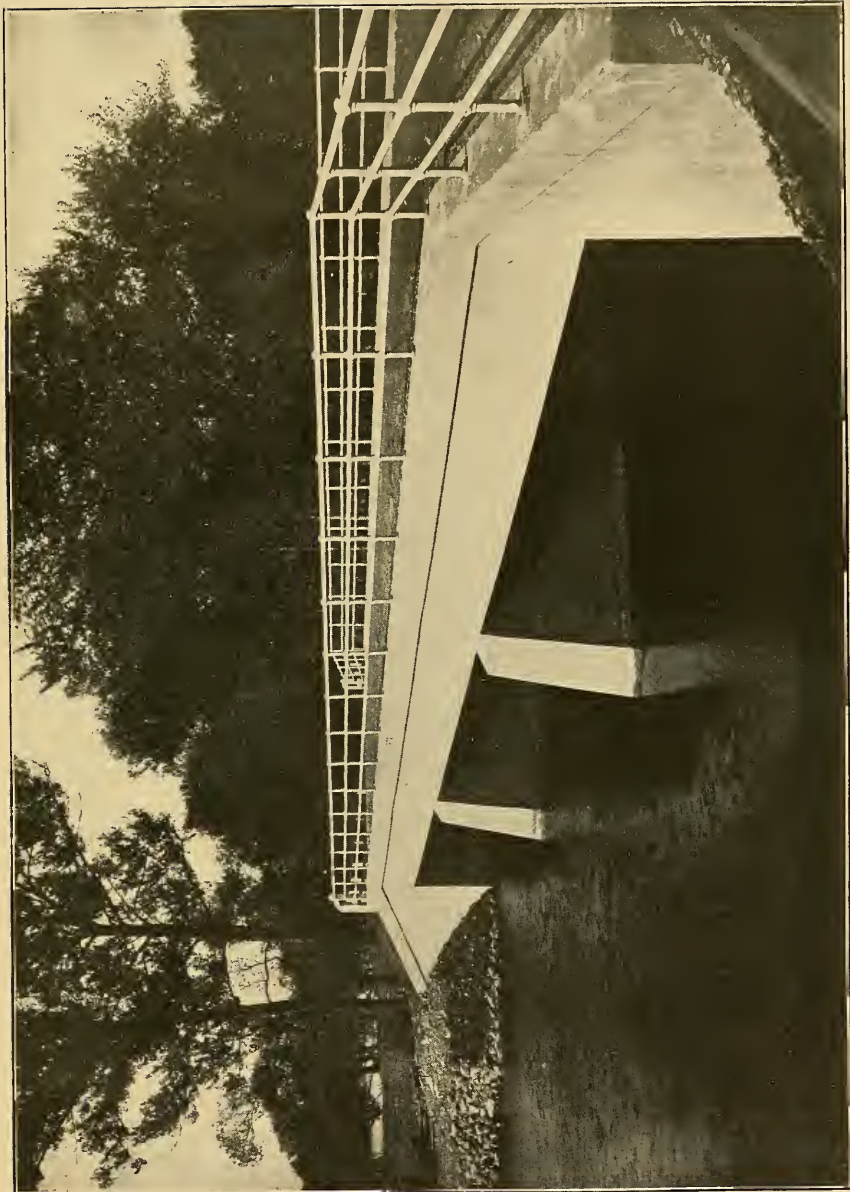
The line from Boston to Providence is finished to the Rhode Island boundary. The highways to the Cape and along the shore, the lines radiating from the larger centers, and others following the well-developed courses of travel, are slowly reaching completion.

The unfinished portions of the State highway between Boston and Springfield, in the town of Palmer, have been completed with the exception of a bridge just westerly of the railroad crossing in Palmer. At this place the proposed straightening of the highway changes the conditions, and it is not deemed expedient to finish these few hundred feet until it is decided what the exact location of the bridge should be, nor until some agreement is made as to the method of paying for the new structure. The present road marks the boundary between the towns of Monson and Palmer, one-half of the bridge being in each town. The proposed new bridge will be wholly within the limits of Palmer.

So many of the routes are now built upon that the purpose of the commission is apparent. Such routes as are now in process of construction should be completed as a part of the general scheme of State highways before the construction of subsidiary roads of less public utility is undertaken.

The number of miles covered by petitions is 1,963.55, the actual miles built 740, — showing that under normal conditions it will be many years before all present demands are satisfied, even after eliminating the roads that are of a purely local significance.

The experience of another year has not pointed to any material change in the methods of constructing macadam roads. From time to time modifications or slight changes in methods affecting the durability of a road or the economy of its construction have been adopted; but in the main the former practice of the Board has been confirmed. It is apparent, however, that automobiles have changed conditions, and macadam roads



REINFORCED CONCRETE BRIDGE OVER NASHUA RIVER BETWEEN GROTON AND PEPPERELL.

subjected to much motor vehicle traffic must be treated from a wholly different point of view. It has been found that the surface or top course of such roads must be held together by some tenacious binder which will counteract the corrosive action of automobile tires. This matter is discussed at length under another head.

BRIDGES AND CULVERTS.

In the construction of culverts and bridges the Board has continued the use of reinforced concrete. The economic value of this material is so marked that rubble masonry for these structures has been abandoned. It is the feeling of the Board that all bridge floors, culvert tops and guard fences should be, so far as possible, made of imperishable materials, in order not only to save the cost of maintenance, but also the expense of inspection.

The two most important bridges built by the commission during the year are the Groton-Pepperell bridge, across the Nashua River, and the Ashby bridge, on the road leading from Fitchburg to Ashby.

The Groton-Pepperell bridge, on the main highway between Boston and Keene, N. H., is a reinforced concrete structure, with two piers (three spans). It takes the place of an old wooden, lattice bridge of unknown date. The actual cost of this bridge was greater than was anticipated, because of the unusual depth to which its foundations had to be carried, and because of the difficulty of constructing piers and abutments in a mill pond where the water was 14 feet deep. The depth of water could not be reduced by drawing it off, except at an excessive cost.

The Ashby bridge was built to take the place of a wooden truss structure over Willard Brook, on abutments built under the direction of the commission many years ago. The freshets of last spring, carrying down large masses of ice, tore out one corner of an abutment and caused one end of the bridge to drop into the stream. It was decided, therefore, by the Board that the old abutments were insufficient and that the wooden truss was unsatisfactory, and the Board determined to build a new bridge, with a single reinforced concrete arch, to replace the old structure.

WEST ROXBURY STATE HIGHWAY (WASHINGTON STREET).

The contract for the construction, as a State highway, of a portion of Washington Street in West Roxbury was awarded early in the season, and, although not entirely completed, the road is open to public travel, the street railway companies having had the use of the railway reservation since Dec. 4, 1908.

The highway, laid out and constructed as directed by chapter 574 of the Acts of 1907, has two roadways, each 25 feet wide, a sidewalk on each side, and a reservation for double tracks in the center. The full width of the location is 100 feet. The poles for wires of all kinds, including the railway company's feed and trolley wires, are placed on the inside edge of the sidewalk, and the trolley wires are suspended from span cables. This arrangement of poles and wires is somewhat unusual, but it is believed by the Board that by confining high and low tension wires to different sides of the road better results will be obtained, and that the span-wire plan is less unsightly and otherwise better than center-pole construction.

JACOB'S LADDER ROAD.

Under chapter 616 of the Acts of the year 1908 the commission was required to lay out and construct a road over the Berkshire divide; in other words, to connect the Berkshire towns with the eastern cities, — the determination of the route being left to the discretion of the Board.

The Jacob's Ladder route, so called, over Morey Hill in Becket, was adopted for several reasons. The engineers of the Board have located a line which follows the present road only in part. The new location keeps more nearly to the contour lines, and will in no part exceed $6\frac{1}{2}$ per cent. of gradient. The road is now under contract, to be completed on or before Aug. 15, 1909.

PARKER RIVER BRIDGE.

Chapter 531 of the Acts of the year 1906 directs the commission to report to the Legislature when public convenience and safety require the reconstruction of the bridge across the Parker River in the town of Newbury. In the opinion of the

commission, the time has now arrived when the old bridge, built early in the last century, must be replaced by a modern structure.

Under this act the commission will soon give a public hearing to all parties interested, at which certain preliminary plans and estimates, prepared under the direction of the Board, will be presented, and after the hearing the Board will present to the Legislature of 1909 the plan which it decides upon, together with its estimates and recommendations concerning the proposed new structure.

The commission respectfully represents that some action must be taken looking to the early construction of a new bridge at this point. The old bridge is in a worse condition than was realized when it was included within the State highway system. It is now unsafe, and, although constantly watched, and temporary repairs made, a serious accident may happen, the responsibility for which will rest on the Commonwealth. One accident has already occurred for which the Commonwealth was held to be liable.

MAINTENANCE.

The sum of \$295,433.60, received from all sources, was available during the year 1908 for ordinary repairs, maintenance and resurfacing. Of this amount, \$86,430.67 was used for ordinary repairs.

The ordinary repair of State highways, such as cleaning gutters and catch-basins, filling the ruts and holes, sanding the roads occasionally and caring for the roadsides, and including little or no resurfacing, has in the past cost about \$100 a mile a year.

State highways, however, have been constructed for the last fourteen years; the average age of these roads is about seven years, and the time has come when many of them must be resurfaced if the roads are to be preserved.

The damage done by automobiles has largely increased the number of miles of road that have worn out and require resurfacing, and has materially shortened the time within which the others will also need such treatment.

The division engineers of the commission were requested last

year to make an estimate, and report what roads absolutely required resurfacing in order to preserve the lower courses of stone, and how much money must be spent in the year 1908 to put these roads in reasonably good condition. They estimated that \$313,698 was needed for this purpose, in addition to the usual allotment for ordinary repairs, and that of this amount \$166,281 was needed because of automobile travel. As there was only \$209,000 remaining, after the ordinary repairs were provided for, which could be used for such resurfacing, it is evident that only a part of this necessary work could be done.

The estimates just received from these same division engineers show that \$684,800 is necessary in the year 1909 to resurface the State highways and put them back into reasonably good condition, of which \$366,400 is due to automobile travel. This plainly shows how expensive it is to allow our highways to go without the repairs which are necessary.

It must be remembered that this estimate includes only resurfacing and surface treatment, and makes no provision for ordinary repairs.

The estimates for 1909, made by the engineers of the commission, were prepared carefully and with a complete knowledge of the conditions. The total has seemed to the commission to be somewhat high, but no essential error has been found, and the commission sees no way of materially reducing the estimate.

The advent of the automobile has doubled the expense of maintaining the State highways.

The annual estimate of the amount of money that would be needed for State highways in 1909, which was made out and sent in to the Auditor, named \$250,000 in addition to the net amount available from the automobile fees.

This estimate was made before the estimates mentioned above came in from the division engineers, and was based upon the estimates sent in last year. From the estimates for 1909 it is evident that a much larger sum of money will be necessary, or it will be impossible to maintain the State highways properly. The question is, Shall these highways be preserved, and how is the necessary money to be obtained?

The commission has suggested in the past that, as automobiles do great damage to the roads, a larger registration fee

should be charged. This subject is treated at length under its proper heading.

The commission would, however, suggest that a reasonable graded fee, based upon horse power, would furnish a part of the money which is necessary in order to repair the State highways, and would, at least in part, pay for the damage that automobiles cause to the roads.

In this connection it must be remembered that the amount of money that is now needed for resurfacing is not because of the ordinary wear of one year. It is because the roads were not resurfaced when they first needed it. This was because the commission had no money which it could apply to this purpose. Undoubtedly more money was needed than the commission realized, and it was at fault for not calling the matter more emphatically to the attention of the Legislature until last year.

It must also be remembered that the necessity for one-half or more of this resurfacing is due to the damage done by automobiles, and this could not be anticipated.

It has been only during the last three years that there has been a sufficient number of automobiles to do any excessive amount of damage. A year or more of observation was necessary to even approximately determine how much damage was due to automobile traffic, and to form a reasonable estimate of what will be required in the future.

In England and France, where scientific methods in the care of roads have been employed for generations, and where thousands of miles of government roads have been built, it costs on an average of more than \$300 per mile per year to maintain them, notwithstanding the lesser price of labor and longer days.

The chairman and the secretary of the commission were selected by Governor Guild and sent abroad to attend the International Road Congress in Paris, in October, 1908. They inspected many roads in England, France and elsewhere, and their observations and information received from officials in charge of the maintenance of roads in those countries are confirmed by many official reports recently received and examined by the commission.

At the Road Congress it was agreed, without dissent, that

motor vehicles have created a wholly new condition of things, and that extraordinary measures must be adopted or macadam roads will be ruined, or maintained only at an extraordinary and unreasonable cost. The congress proclaimed that automobiles driven at a rate not exceeding 12 to 15 miles per hour do little or no damage to well-built stone roads, but at speeds in excess of 15 miles per hour the damage done is measured by a rapidly increasing ratio.

Many trials have been made by the commission during the past and previous years with tar, oil, asphalt and various combinations or mixtures of these materials, a detailed statement of which will be given under the proper head. It will be seen that very careful study has been given to these experiments by the engineers and by the Board itself, and although much has been learned, the deductions are not yet such as to enable the commission to announce a definite policy.

EXPERIMENTS WITH BITUMINOUS AND OTHER MATERIALS.

The commission, in common with road builders everywhere, has been attempting to determine what method of construction should be used to prevent automobiles from doing an undue amount of damage to the highways; also to prevent the dust which is raised by automobiles from proving an intolerable nuisance to other users of the roads and to persons living adjacent thereto.

The experiments divide naturally into two groups: the temporary laying of dust and the partial and temporary preservation of road surfaces, and the employment of some new material as a binder in the construction of the roadway, which will enable the road to withstand automobile travel and without excessive dust.

TEMPORARY DUST LAYERS AND ROAD PRESERVATIVES.

The commission has repeated and extended the experiments of last year in the use of various dust layers and various materials to temporarily preserve road surfaces, and in 1908 more than 45 miles of State highway were so treated.

Nearly 23 miles have been treated with Texas oil, at a cost varying from 5 to 7 cents per square yard.

Liquid asphalt was used on 10.22 miles, at a cost of about $6\frac{3}{4}$ cents per square yard.

Tarvia B was used on 2.20 miles, at a cost of about 4 cents per square yard, including covering.

Rotar was used on 1.2 miles, at a cost of $5\frac{3}{4}$ cents per square yard.

Asphaltoilene was applied to 1.5 miles, at a cost of 6 cents per square yard.

The processes, in general, were substantially the same, and consisted in cleaning the road surfaces of all dust down to the stone, spreading the bituminous materials, in some cases cold and in some cases hot, according to their consistency, allowing them to soak in for a time, then covering with sharp sand or gravel, or stone screenings, to absorb the surplus material and to provide a wearing surface upon the road.

Nearly 4 miles of road thus treated were paid for by the authorities in charge of the automobile race in Lowell on Labor Day.

The price varied according to the haul and other local conditions, the bituminous materials being nearly uniform in price.

Judging by the experiments of two years, it can be said that these various materials lay dust very satisfactorily and prevent roads from raveling to a great extent. The roads have raveled in places, and this has been due, in the opinion of the engineers and other observers, to the fact that there were dust pockets, or places where the material used did not penetrate to the stone beneath, or the stone was not thoroughly compacted, but was loose, and the top surface, therefore, scaled off. If the patches that have scaled are not treated very soon, large depressions quickly form where there is much automobile travel.

In general, with any of the bituminous materials mentioned, satisfactory results were obtained if sufficient care was used in doing the work. The effect of these treatments has, so far, in some places largely disappeared by the following spring, but where a road was in proper condition, it has prevented any serious raveling during the season.

Calcium Chloride and Oil Emulsion.

Calcium chloride was used upon 4 miles of State highway in Beverly, being paid for by the residents upon the shore. It laid the dust in a very satisfactory manner, and somewhat preserved the road surface, — better than proper watering would have done. The road, however, has developed some small holes and depressions, and has had to be repaired twice during the year and small quantities of stone added, although it is only from two to three years old. Automobile and team travel is very heavy upon this road.

During the season of five months six applications of calcium chloride were put on, and the cost for the spread of the cart (about 17 feet wide) was \$289 a mile for the season.

Upon a mile of State highway in North Beverly, which had been newly resurfaced, oil emulsion was used, the cost being defrayed by one of the abutting owners. The treatment was started late in the season, so that the cost for the year could not be determined.

A soft naphtha soap was used to emulsify the oil, 20 pounds of soap being mixed, by an ordinary pump, with 50 gallons of water and 100 gallons of Texas oil. The emulsion was then put into a watering cart, the water turned on from a hydrant, under pressure, with a hose pipe, until the cart was filled, and then the mixture was immediately spread upon the road. It was found that with one watering cart of 600 gallons' capacity about $\frac{1}{5}$ mile of road could be covered, and that the materials cost \$30 per mile for each application, for the spread of the cart. As there was considerable dust upon the road, a second application was necessary within a week, and a third at the end of a month, but the dust was satisfactorily laid for about three months, or until snow fell.

Both calcium chloride and oil emulsion require several applications during a year, probably from four to six, to produce satisfactory results, and with calcium chloride the road has to be watered once a day during the dry season, but, speaking generally, the results produced are much better than those obtained when an ordinary watering cart and water alone are used, and the expense is no greater than the cost of watering,

because one cart can take care of as many miles of road as three carts can when water alone is used. The saving in the cost for teaming, etc., will just about pay the cost of the calcium chloride. The chief advantage in the use of this chemical lies in the fact that the dust is satisfactorily laid during the whole day of twenty-four hours.

The same is probably true of oil emulsion, but neither these materials nor the ones mentioned above are more than temporary dust layers and road preservatives, as the effect is almost, if not entirely, lost by the following spring.

DUST LAYING IN CITIES AND TOWNS.

The commission would respectfully call attention to the fact that a question has been raised as to whether cities and towns had any authority under the existing law to use anything except water upon highways, under chapter 26 of the Revised Laws, sections 25 to 27, and under chapter 25, section 22; and whether, if any other substance were used, any part of the expense could be assessed on the abutters.

As many substances can be used upon roads which will lay dust much better than water, and preserve road surfaces temporarily, and possibly for considerable periods of time, the commission would respectfully suggest that it might be wise to enact some provision of law that would enable the various municipalities to use oil, tar, calcium chloride or other dust-laying materials; to authorize such use, and to provide that the whole or a part of the expense may be assessed upon the abutters when any way is treated with said materials.

A special act of this character was passed last year (chapter 623 of the Acts of the year 1908), authorizing the city of New Bedford to use oil or any other substance, and assess the cost in the above manner.

NEW CONSTRUCTION WITH VARIOUS BITUMINOUS BINDERS.

The commission has conducted a number of experiments in several places in order to find, if possible, some method of road construction which will prove satisfactory, both for automobiles and for horse-drawn vehicles.

A number of these experiments have been tried to determine whether, if bituminous binders are to be used, it will be sufficient to adopt the penetration or grouting method in the upper course after the stones are laid and partially rolled, or whether the stones for the top two or three inches of the road must be coated before they are spread upon the road.

A number of experiments were made in Wenham, where the State highway was being resurfaced. The old road was first picked up and shaped, then No. 2 stone was spread and rolled. The bituminous material was then heated in a large, movable kettle, spread evenly upon the road, broomed to secure the most even coating possible, and allowed to penetrate into the interstices between the stones. All travel was kept off the road.

The road was then rolled and covered in different sections with top-dressings of sharp sand, clean gravel, pea stone, or sand heated and mixed with tar and brushed on the road so as to fill all the interstices remaining after the grouting.

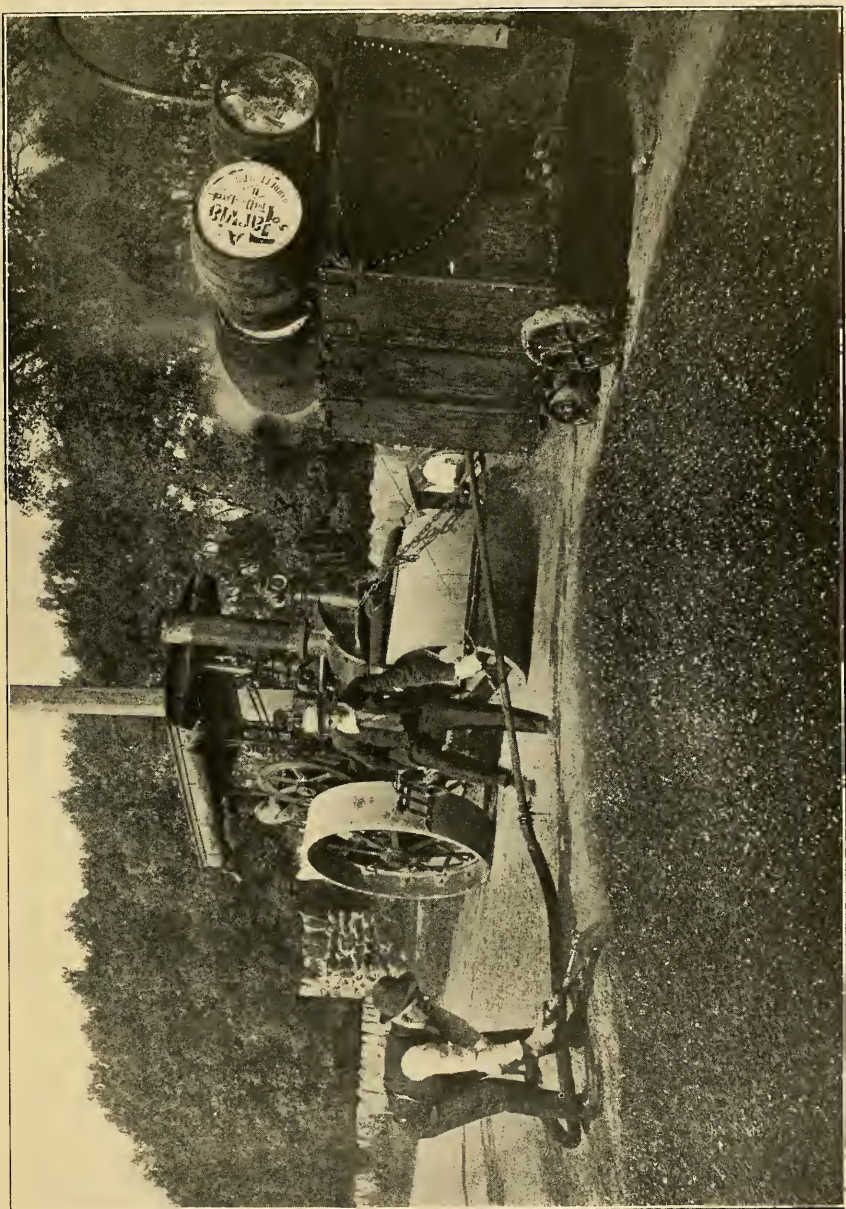
In general, sections were built 100 feet in length, and were divided into three parts, using upon the first materials obtained from the American Tar Company, on the second those obtained from the Barrett Manufacturing Company, and on the third various asphaltic oil and residuum oil products obtained from the Gulf Refining Company.

Tar Grouting.

These materials were heated when that was necessary, spread upon the road, brushed in and covered. In some of the tar sections a flush coat was painted upon the top of the road. A little less than 2 gallons of bituminous material to the square yard of road surface were used, and the tar was mixed in various proportions with pitch, and, in some cases, with residuum oil asphalt.

Oil and Asphalt Grouting.

In the oil and asphalt section the material was prepared and spread in the same manner, and was mixed in various proportions, using, in some cases, a so-called fluxing oil (a residuum asphalt oil) and proportions of equal quantities of asphalt and fluxing oil, to three parts of fluxing oil and one part of asphalt.



TAR-GROUTING EXPERIMENT AT WENHAM.

Water-gas Tar Grouting.

Short sections were treated with water-gas tar, which did not prove satisfactory, nor did a mixture of asphalt and water-gas tar. These sections were, therefore, re-treated.

Costs.

The cost for shaping, picking up and putting on No. 2 stone, at an average of $18\frac{1}{3}$ tons to the 100 feet, was \$0.315 per square yard.

The cost of the bituminous materials, labor, heating, spreading, and the sand, gravel or pea stone used on the top in the sections of road built of tar, varied from \$0.184 to \$0.213 per square yard.

In the asphalt section, where tarvia and asphalt were used, the cost for the bituminous material, labor and top covering was \$0.292 per square yard.

A short section which was built with an oiled sand top cost \$0.417 per square yard. This work was similar to that done at Wareham, which will be discussed later.

In considering the costs, it must be remembered that they were excessive for several reasons; one because the work was done late in the year and the sand had to be heated. The second and more important reason is that in changing from one material to another in each 100-foot section the work had to stop, the kettle had to be emptied and the fire drawn before the new materials which were to be used could be heated, and there was necessarily a large waste in labor while the men were waiting for the new material to heat.

Tarvia Grouting at Westminster.

A much more reliable estimate of the cost of this kind of work can be deduced from the Westminster experiment. There a macadam road, 9,836 feet in length, built as a State highway between the years 1894 and 1899, was much worn. Not any of the upper course remained, and in places the stone had been worn through to the road foundation.

After picking up and shaping the old surface, No. 1 stones, varying in size from $2\frac{1}{2}$ inches to $1\frac{1}{4}$ inches, were spread

to a width of 12 feet, so that the upper surface of this course should be $1\frac{1}{2}$ inches lower than the proposed finished road surface, and so as to produce a crown of $\frac{3}{4}$ inch to the foot, using, in all, 1,492.2 tons of trap rock (15.17 tons per 100 feet) in this course. The No. 1 stone so spread was rolled thoroughly with a 12-ton roller, and all of the voids were filled with a sandy gravel, but no surplus gravel was allowed to remain on top of the course.

No. 2 trap rock ($1\frac{1}{4}$ inches to $\frac{1}{2}$ inch) was then spread on in an even layer to a width of 15 feet and to such a depth that, after rolling, the course should be $1\frac{1}{2}$ inches thick, 934.16 tons (9.497 tons per 100 feet) being required. This course was rolled until its surface was at the required cross-section and until it was moderately compact.

Tarvia, graded as No. 5 by the Barrett Manufacturing Company, was then applied. Here, as at Wenham, the tarvia was heated in large, portable kettles to about 180° F., and was then flowed upon the stones by means of a hose having a flat nozzle, and distributed as evenly as possible at the rate of about 1 gallon to the square yard of surface. After a few hours the road was covered with dry, coarse sand up to pea size, rolled thoroughly, and some excess sand left upon its surface.

The road picked up in places before the work was completed, and as an examination of some of the loose stones showed that they had not been completely coated with the tarvia, the commission increased the quantity of tarvia from 1 to $1\frac{3}{4}$ gallons per square yard on the remainder of the contract.

Costs.

2,426.36 tons of broken stone, including picking up and shaping old surface, gravel binder, and all incidental work and materials, at \$2.30,	\$5,580 63
12,083 square yards of tarviated surface, at \$0.11,	1,329 13
4,310 square yards of tarviated surface, at \$0.19,	818 90
Total,	<hr/> \$7,728 66
Square yards resurfaced,	16,393
Cost per square yard,	\$0 471
Tons of stone per 100 feet,	24.667

While the foregoing costs are contract costs after competitive bidding, and are not taken from the contractor's pay rolls and vouchers, it is known that there was little or no profit to the contractor on this work. In fact, he has stated that he came out about even.

At the end of the season the road was in good condition, and all the surplus sand left upon it had either combined with the tar or blown off.

Bituminous Macadam at Hamilton.

The commission, at the request of the selectmen of the town of Hamilton, constructed a small section of bituminous macadam road on the main street at Hamilton station, a part of it being paid for by the Boston & Maine Railroad Company.

This was new construction. The roadbed was carefully prepared with a subgrade of good gravel, and graded according to cross-sections. Upon this was laid a 4-inch layer of No. 1 stone, thoroughly rolled. A coating of coarse sand was then added, flushed with water and thoroughly rolled, using about 1 cubic yard of sand to every 12 square yards of road surface in order to fill the voids, so that the tar, to be applied later, should not go down into the lower course of stone.

Upon this was laid a 2-inch layer of No. 2 stone, which was coated with tarvia No. 5, secured from the Barrett Manufacturing Company. It was all mixed by hand upon a dumping board, the stone being turned from two to seven times. About 14.3 gallons of tarvia were used for each cubic yard of stone, and several mixtures with tar, pitch and asphalt were tried, but the tarvia was found to be satisfactory. On a portion of this work pea stone was mixed with the No. 2 stone, in an attempt to more completely fill the voids.

After the stone had been coated, placed upon the road and rolled, a flush coat of No. 3 tarvia was spread upon the surface, and in some cases tarvia mixed with pitch, using from $\frac{1}{4}$ to $\frac{1}{2}$ gallon of tar to the square yard of road surface. This was covered with sharp sand in some places and pea stone in others, and rolled three or four times to fill all the voids.

While the tar ran out a little during the hot weather and additional sand had to be added, and a few slight depressions

appeared, these all filled up again, and the road is now in satisfactory condition and shows no sign of wear.

There were 2,436 square yards in all built in this manner. The work was necessarily expensive because such a small quantity was done, and various experiments were tried. The total cost, including all stone, shaping, grading, etc., was a little under \$0.71 per square yard.

The cost of the tar, mixing, etc., for the course of No. 2 stone was \$0.22 per square yard, and the cost of the stone was \$0.111 per square yard. The cost of the flush coat put on top, including the tar, etc., was \$0.056 when sand was used, and \$0.068 when pea stone was used, per square yard.

This makes an additional cost for the use of the bituminous macadam rather than ordinary macadam of from \$0.27 to \$0.28 per square yard. Undoubtedly these costs would be reduced from 25 per cent. to 30 per cent. on a good-sized piece of work, and still more, perhaps, if a mechanical mixer were used.

Bituminous Macadam at Essex.

The commission has also resurfaced a small section of State highway in Essex, something over 600 square yards, using the same mixing method and a mixture of tarvia and asphalt.

This work was begun late in the fall and had to be discontinued before much progress had been made. All stone and other material that was to be coated had to be heated, so that the cost was somewhat higher than it was in Hamilton.

It is too early to state whether these methods of construction will be satisfactory or not, as they have not yet stood the test of a winter.

RESURFACING WITH SAND AND ASPHALT OIL MIXTURES.

The commission has tried several experiments in resurfacing old macadam roads with various bituminous materials mixed with sand and spread upon the top of old roads. In this work the old surfaces were picked up and shaped, so as to bring them to a true crown and grade. A layer of bituminous material and sand was then placed to a depth of about 2 inches in the center and 1 inch at the sides.

Wenham.

In Wenham there were 316 square yards treated in this manner, using on the first 100 feet a mixture of oil asphalt and fluxing oil in equal quantities, and fluxing oil alone on a second section. Both products were heated to about 180° F., and the sand was heated also, as it was late in the year, and the mixture was then spread upon the road, as above stated.

On the first section, 26 gallons of the mixture were used to every cubic yard of sand, and on the second section, 17½ gallons. The average cost of these two sections treated in this manner was \$0.462 per square yard. This cost was considerably less in the section where fluxing oil alone was used, as the quantity used was only 1 gallon to the square yard of road surface, whereas where the asphalt and fluxing oil mixture was used it was nearly 11½ gallons to the square yard. Also, the price would be much less (especially in using fluxing oil alone) if the work were done in warm weather, when the sand did not have to be heated.

Wareham.

In Wareham, near Tremont station, the same kind of experiment was tried upon a macadam road. The materials for use there were furnished free of charge by the companies and individuals dealing in the same.

The commission desires to thank the various people for their kindness in donating the materials which are referred to herein.

On the macadam road, when necessary, it was shaped; otherwise it was brushed as clean as possible, and generally a light coating of the material that was to be used in the mixture was spread upon the clean road before the mixture was applied. In one or two instances, where this was not done, the top coat had a tendency to peel off and separate.

In general, the mixture was made of the bituminous material and sand, both being heated and mixed upon a dumping board, and then spread upon the road in sufficient quantities to produce a coating 2 inches thick in the center and 1 inch thick on the sides. This was then rolled with a light roller, weighing about 200 pounds, and later with a roller weighing

700 pounds, and thoroughly compacted. Travel was kept off for several days.

Tarvia B. — A section 325 yards in area was treated with tarvia B, furnished by the Barrett Manufacturing Company. Here the quantity used was a little less than $\frac{1}{2}$ gallon to the square yard. This mixture hardened very slowly and did not seem to bind very well, although it improved in condition somewhat in ten or twelve days, until it began to freeze. Since then the condition has been rather poor.

Tarvia A. — About 300 yards were treated with tarvia A, furnished by the Barrett Manufacturing Company. Here $\frac{1}{4}$ gallon per square yard was used in a wash coat, and about $\frac{1}{2}$ gallon per square yard with the mixture. The coating here was about $\frac{3}{4}$ inch in the center and $\frac{1}{2}$ inch on the sides, after rolling. This material began to harden in about three days and was quite well bonded in ten days. It broke up a little when it first froze, but is still in fairly good condition.

Petroleum Road Oil No. 4. — The next section treated was 261 yards, where petroleum road oil No. 4, furnished by the Standard Oil Company, was used. Here, including the wash coat, about .87 gallon was used per square yard. At the end of a week there was not very much bond, but at the end of two weeks it had improved, and was in fair condition, although somewhat loose in the horse path, but well compacted where the wheels went over it.

Asphalt Macadam Binder No. 8. — The next section was 437 square yards, where asphalt macadam binder No. 8, furnished by the Standard Oil Company, was used, the section being 2 inches thick in the center and $\frac{3}{4}$ inch thick at the sides. Here .92 gallon was used for each square yard of surface. The weather was quite cold when this was put on, but it began to harden in one day, and when travel was turned on, in two or three days, it was hard enough to hold it up. It is still in good condition.

Fluxing Oil. — The next section was 130 square yards, which was treated with fluxing oil, furnished by the Gulf Refining Company. (This is a residuum asphalt oil, which has to be heated.) Here, including the wash coat, 1.42 gallons were used for each square yard. The depth of the sand and oil

mixture was 2 inches in the center and 1 inch at the sides. This material hardened in one day, and has been in excellent condition ever since.

Asphaltoilene. — The next section treated was 125 square yards, where asphaltoilene, furnished by the Good Roads Improvement Company, was used, 1.36 gallons being used for each square yard of surface, including the wash coat. When travel was turned onto it, in two or three days, it had not hardened appreciably, and it is still somewhat loose, and ruts.

Fluxing Oil and "A" Asphalt. — The next section was 188 square yards, treated with fluxing oil and "A" asphalt in equal parts, procured from the Gulf Refining Company. A section 2 inches deep in the center and 1 inch deep at the sides was put on, using $1\frac{1}{2}$ gallons to the square yard. This material hardened very rapidly, with very little rolling, and in twenty-four hours held up travel without rutting. It is still in good condition.

The next section was 76 square yards, treated with fluxing oil three parts and "A" asphalt one part. The coating was of the same thickness, and 1.2 gallons of the mixture were used for each square yard of surface. This also hardened rapidly, and within twenty-four hours held up travel, without any indication of rutting, and is still in good condition.

Liquid Asphalt. — The next section treated was 56 square yards, where a light liquid asphalt was used, furnished by the Indian Refining Company, about $1\frac{1}{2}$ gallons being used to the square yard of surface. Travel was allowed over this section on the day it was applied, and it rutted slightly, but soon smoothed out and is now in good condition.

The next section treated was 63 square yards, where heavy liquid asphalt, provided by the Indian Refining Company, was used, about $1\frac{1}{2}$ gallons being used to each square yard of surface. Travel was allowed over this section the first day, and slight ruts formed, but these soon smoothed out and the surface is now in good condition.

Texas Oil. — In the next section, 90 square yards were treated with Texas oil, furnished by the Texas Oil Company. Here 1.4 gallons were used for each square yard. This oil would run out of the barrel without being heated. Travel was

allowed over this section of road on the same day that the mixture was applied, and, while it rutted a little in the beginning, it has since smoothed out and the surface is now quite smooth and in good condition.

Costs.

The cost of these different sections varied greatly, according to the materials used, the quantity, thickness of section, etc. The tars and oils were donated.

As a rough estimate of the probable future cost of such work it can be stated that the total cost for labor, heating, grading, sand, mixing, spreading, rolling, etc., was from \$0.115 to \$0.22 per square yard (not including bituminous materials). This cost can probably be nearly, if not quite, halved on good-sized pieces of work.

The tar and oil products will probably cost from \$0.045 to \$0.09 per square yard.

In general, it should be noted that in these experiments, as in those at Wenham, the cost is excessive because of the late season of the year, and because, with all the materials, the sand had to be heated and mixed upon a dumping board, then placed upon the road.

This is also true of experiments with oiled roads, which are mentioned below. With some of the materials it will probably be necessary to heat the sand at all seasons of the year, but with many others, the bituminous material, whether tar or oil, is all that will have to be heated, and it can be spread upon the sand in hot weather.

It is probable, also, that a very large saving in cost can be made, when it has been determined what materials to use, by the use of some mechanical mixer similar to some of the concrete or asphalt mixers, particularly the ones with a double blade.

BITUMINOUS BINDERS FOR SAND ROADS.

Experiments at Wareham.

The commission conducted a number of experiments this fall in Wareham, using the same materials mentioned above, which were furnished, free of cost, by the manufacturers and dealers.

These materials were used in building sections of road where nothing but a mixture of sand and the oil or tar binder was put upon the road.

The road selected was near Tremont station, was well drained, required but little grading, but was an ordinary Cape Cod sand road.

The oils and tars used were heated in a small kettle to about 200° F. Sharp sand was heated on the side of the road, and all moisture expelled. Where oil and asphalt were used it was found necessary to heat them in separate kettles, as the asphalt required more heat than the oil.

The oil or tar and sand were mixed by hand upon platforms, the mixture being turned four or five times. It was then spread upon the prepared surface, about 4 inches deep in the center and 3 inches on the sides. Soon after spreading, the surface was rolled with hand rollers, weighing from 250 to 700 pounds each, and travel was kept off for one day to one week, as seemed necessary.

The total costs of the work, including a small amount of grading and some shaping, but not including the cost of any of the bituminous binders, which, as before stated, were all donated, varied from \$0.30 to over \$0.60 per square yard. The binder used varied in quantity from 1½ gallons to 2¾ gallons per square yard.

It seems probable that these costs may be cut at least in halves when any considerable length of road is constructed. The engineer who had charge of the experiments estimates that with some of the materials a fair cost would be from \$0.20 to \$0.25 per square yard, including the bituminous binder and all other materials and labor.

In general, the widths treated were from 15 to 18 feet, as this width seemed necessary in order to prevent travel from turning out onto the sand and thereby shearing off the shoulders.

Tarvia B. — The first section treated was 118 feet long, and was treated with tarvia B. On 236 square yards was placed an application of the mixture 3½ inches deep in the center and 3 inches deep on the sides. Here 1½ gallons of tarvia were used for each square yard. The surface did not harden

appreciably for about ten days, and the road was rolled occasionally and travel kept off for two weeks. When travel was first put on the surface rutted considerably, but afterward improved rapidly. It also broke up a little under frost, but has improved since, and, while not as satisfactory as the section treated with tarvia A, it is in reasonably good condition.

Tarvia A. — The next section was 180 square yards, where 1.85 gallons of tarvia A were used to each square yard of surface. The surface commenced to harden in two or three days, and travel produced very little effect on it. It has been in good condition ever since, although it has shown a slight tendency to break up once or twice.

Petroleum Road Oil No. 4. — This is a light asphalt residuum oil, and was furnished by the Standard Oil Company, 270 square yards of road being treated, using 1.63 gallons of oil to the square yard. When travel was put on, in about ten days, it had not bound very much and was badly cut up and rutted by wheels. Since then it has been tamped and rolled occasionally and is somewhat improved, although it still ruts. Possibly better results would have been obtained had a heavier roller been used.

In another place, 99 square yards were treated with this same oil, using 2.8 gallons to the square yard. The section used here was 6 inches deep in the center and 4 inches on the sides, but when travel was turned on it rutted somewhat and showed a tendency to cut through.

Asphalt Macadam Binder No. 8. — This is a heavy asphalt residuum oil, furnished by the Standard Oil Company, 180 square yards being treated, using $1\frac{1}{2}$ gallons of the binder to each square yard of surface. The surface began to harden in twenty-four hours, and was quite hard in two or three days, being rolled occasionally. When travel was first turned on, in about nine days, it rutted slightly, but has since hardened so that it holds up travel and is now in good condition.

In another place 37 square yards were treated with the same mixture, 6 inches deep in the center and 4 inches on the sides, 2.40 gallons being used to the square yard. This section rutted slightly, as did the first section, where a thinner coat was used,

but it soon hardened so that it would hold up travel and is now in good condition.

Fluxing Oil. — Fluxing oil is a heavy asphalt residuum oil, furnished by the Gulf Refining Company, 208 square yards of surface being treated, using 1.63 gallons per square yard. The mixture began to harden in two or three hours, and was hard enough to hold up travel in twenty-four hours. It was rolled only for one day. Travel was turned on in three days, and has made no impression on the surface, nor has it been affected by freezing or thawing; it is still in good condition.

Asphaltoilene. — Asphaltoilene is a light oil, furnished by the Good Roads Improvement Company, 170 square yards being treated, using 1.94 gallons to the square yard. It has been rolled repeatedly with light rollers. Travel was turned on in about a week. The material has not hardened very much nor compacted, and is still very loose.

Asphalt and Fluxing Oil, Equal Parts. — Asphalt and fluxing oil, in equal parts, was used on 163½ square yards, the materials being procured from the Gulf Refining Company, 2½ gallons of material to the square yard being used. It was found that unless all the materials — oil, asphalt, and sand — were extremely hot (200° F.) they would not mix properly, and that the asphalt tended to settle and “ball up.” In order to produce good results the heating had to be very carefully done. The mixture had to be turned from six to eight times. It hardened very quickly and was very hard in twenty-four hours. It held up travel well, without any indication of breaking up or rutting, and is still in good condition.

“A” *Asphalt One Part, Fluxing Oil, Three Parts.* — This mixture was more easily handled than the one mentioned above, and hardened in about twenty-four hours, 187 square yards being treated, with 2½ gallons to the square yard. Travel was turned on the road in twenty-four hours, and there has been as yet no indication of rutting or breaking up, and the surface is still in good condition.

Heavy Liquid Asphalt. — A heavy asphalt residuum oil, furnished by the Indian Refining Company. This oil is somewhat lighter than the asphalt macadam binder No. 8, or the

Gulf Refining Company's fluxing oil. With this material 71 square yards of road were treated, using $2\frac{1}{2}$ gallons of oil to the square yard. The mixture began to harden in a few hours and was quite hard in twenty-four hours. Travel was turned on in five days. It shows a slight indication of rutting, but has not rutted badly or broken up under travel. It is still in good condition, although it does not seem to be quite as hard as the sections that were built with the asphalt macadam binder No. 8, or where the Gulf Refining Company's fluxing oil was used, and is much softer than where asphalt was mixed with the oil.

Liquid Asphalt, Light. — A light asphalt residuum oil, furnished by the Indian Refining Company. With this oil 172 square yards were treated, using $3\frac{1}{4}$ gallons to the square yard. The oil mixed very readily with the sand, commenced to harden in about two days and was quite hard in four days. It has rutted somewhat, but there are no ruts over 1 inch or so in depth, and it has held up heavy teams.

Texas Oil. — This oil was furnished by the Texas Oil Company, 131 $\frac{1}{2}$ square yards being treated, using $2\frac{3}{4}$ gallons per square yard. This oil is quite light and runs readily out of the barrel, but apparently has good binding qualities. It hardened considerably in one day, and in three days was hard enough to hold up travel, with only slight ruts and no indication of breaking up. At present the road is in good condition, and it compares favorably with other sections of road, where heavier oil was used.

SAND AND OIL ROADS.

Eastham.

The above experiments were in continuation of some that the commission tried in 1905 in Eastham. Two sections of road were treated there, one section a macadam road, which was treated with an oil and sand mixture, and the other a section of sand road, which was oiled, the oil being heated and allowed to soak into the road, and then being thoroughly harrowed and the road shaped and rolled.

The oil which was used was like fluxing oil, a heavy residuum asphalt oil, which was claimed to contain 65 per cent. of

asphalt. The oil was heated to 180° or 200° F., and applied from a watering cart with a special sprinkling attachment.

After the oil had stood two or three days, sand was put upon it. The work was done late in the fall and was not satisfactory; in fact, it was considered a failure, and it was not until the next year that the oil began to appear upon the surface and to become compact under travel.

In 1907 this road was rolled with a steam roller and patched. While it ruts under travel, and is not in any sense as smooth as a macadam road, it has proved satisfactory in that it has held up travel and only rutted to a slight depth, and is still in reasonably good condition, after three years of wear.

The cost in 1905, when something over a mile of road, 16 feet wide, was treated, was about \$0.17 per square yard, using a little less than 1½ gallons of oil to the square yard. The road was treated a second time in 1906, using .7 gallon to the square yard, at a cost of \$0.1084 per square yard. This made something over 2 gallons of oil to the square yard of road. It has been patched somewhat during the last year.

During the hot weather the oil comes up to the surface, and the division engineer has estimated that some \$400 will be necessary next year to fill ruts and depressions in the road and put it in good condition.

The cost of this road up to the present time has been about \$2,400 per mile.

It was the experience of the commission with this road that decided it to try the various experiments outlined above, to see if sand roads could not be built, using oil, asphalt or tar as a binder, without the use of stone.

It is evident that if satisfactory roads, which will withstand ordinary travel, can be built with sand and these materials, the first cost of the same will be only about 25 per cent. of the cost of a macadam road.

The oiled roads will probably cost from \$1,500 to \$2,000 a mile, using a heavy residuum asphalt oil, which costs about \$0.055 to \$0.06 per gallon, and using about 2 gallons to the square yard. Undoubtedly, after several years, such roads will have to be treated with a second coat of oil, and all ruts and depressions will have to be filled every year.

Harwich-Brewster-Orleans.

The commission has, during the past season, been building a State road of oil and sand in Harwich, Brewster and Orleans, where a section about 3 miles in length is being constructed. The method is, in general, the same as that used in Eastham. Up to the present time, while the oiled road seems to be much better than the sand road it has heretofore had many defects. It has been impossible to secure an even layer of oil and an even thickness of the oil and sand mixture throughout the width of the road. Undoubtedly this can be cured in some way. It is due to the fact that during construction the horses' feet make holes in the sand, and the subgrade is rutted deeply by the wheels of the carts. The oil, no matter how evenly it is spread, tends to settle into the depressions.

The defects, however, seem to be due to the methods of construction rather than to any inherent trouble with the materials used. It is possible, of course, although considerably more expensive, to mix all of the oil and sand upon the roadside, grade the section of road to be treated, and to then apply the oil and sand mixture in an even layer. If a mechanical mixer is used, the expense of this method will not be prohibitive.

In some places it may be possible to spread the oil in even layers from the roadside, where there is sufficient width to allow the cart to travel upon the shoulders. It may be possible to construct some special tank wagon with a wide enough axle to reach across the road, and spread the oil from that, without rutting the road, shaping it behind the horses. If this method is used it will probably be best to put the oil on in a thin layer of $\frac{1}{2}$ gallon to the square yard, and then cover it with about 1 inch of sand to each layer of oil, as the oil, in warm weather, tends to work up through the sand rather than down.

It is impossible at the present time to state which of the various materials used will prove the best. It does seem probable, however, that some one of these materials and mixtures will prove to be satisfactory, and can be used for the purpose of producing not only a dustless road but one that will withstand automobile travel, and can also be used in combination with

sand or gravel to produce a road which will withstand any ordinary travel, be dustless and not cost more than 25 per cent. to 30 per cent. of the cost of a macadam road.

Even if such roads have to be treated every year, at an expense of from \$0.05 to \$0.08 per square yard, they would probably prove to be cheaper than macadam roads, especially taking into account the first cost of construction, and the fact that a binder of some character has to be used upon macadam roads as well, in order to prevent their being destroyed by automobiles.

ROADS TREATED WITH TARVIA IN 1907.

There were several stretches of road treated with tarvia A in 1907, this being a refined tar product procured from the Barrett Manufacturing Company. These were at Wayland, Weston, Lynn and Westwood, and a section in Bourne. The results differed in the various places.

In Weston the roads were unsatisfactory, the refined tar on the surface disappearing over 50 per cent. of the surface during the season of 1907.

In Wayland, Lynn and Westwood the tarvia remained upon the surface, and in fairly satisfactory condition, during the season of 1907. In 1908 a number of holes appeared from time to time where the tarvia had worn out or disappeared. When such bad places are patched immediately with tarvia, or a mixture of tarvia and pitch, the road may be kept in good condition until another general treatment is needed.

The cost of the patching that had to be done in 1908 varied from 1 cent to 2 cents per square yard of the entire surface of the road.

As with the oil treatments, the best results were obtained when the material was placed upon clean, well-compacted stone, and where there were no dust pockets or loose stones underneath.

In Wayland and Bourne it seems at the present time that the roads should go through another season with nothing but patching, and without any retreatment of the whole surface.

In Lynn and Westwood the tarvia has worn off so that it is probable that the road will have to be recoated with a light

surfacing of refined tar, and pea stone or sharp sand added, to reproduce a wearing surface.

Where these roads were not tarviated for the entire width there has been a tendency for the tarvia on the shoulders or edges to crack off, and for the road to begin to ravel then. Experience seems to indicate that practically the entire width of the roadway should be treated, though this will cost more money.

The original cost of the tarvia A work done in 1907, including rolling and the top-dressing, was from 10 cents to 12 cents per square yard, but it is expected that retreatments will cost much less.

TAR TREATMENT IN ENGLAND.

In England and elsewhere mechanical sprayers of different kinds are being used, which spray, under pressure, a fine coating of tar upon the road, and then a light coating of sharp sand or stone dust is put upon the top. This treatment is repeated every year, but it is claimed that all of the surface that has worn off during the previous year is thereby replaced and the road maintained in good condition, and, further, that in the course of a few years the road surface is built up, and requires less tar each year.

Many of the roads which have been so treated for several years were in good condition this fall.

It was claimed that with the use of these power machines a very small quantity of tar can be made to go a long distance, and that 1 gallon of tar will cover from 6 to 9 square yards of road surface and would prevent it from raveling. It is stated that the annual cost of such work varies from about 3 cents to 5 cents per square yard in England.

It is possible that in this country some such method can be adopted and thereby save a large part of the cost of the materials used, as well as a large part of the labor cost, and that by applying yearly a thin coating of whatever material is used, whether refined tar or asphaltic oil, or mixtures, the roads can be maintained from year to year without serious deterioration, and at a reduced cost.

GENERAL CONCLUSIONS ON TAR AND OILS.

In conducting this year the series of experiments which are outlined in this report, and judging by these experiments and those of last year, the commission decided that it was absolutely necessary to know the exact character of the materials which were being used, in order to be able to procure good results and to account for failures.

The commission, therefore, employed Mr. H. W. Clark, chief chemist for the State Board of Health. Mr. Clark has made analyses and physical tests with the various materials which the commission has used during the year, and his reports will prove of great value in determining the character of future work and the materials that should be used.

It is too early to give exact details until it has been demonstrated by actual experience on the roads themselves how the various materials will wear. A few general considerations and tentative conclusions, however, can properly be advanced at the present time.

ASPHALTIC OILS.

So far as the experience of the commission is concerned, it seems evident at the present time that in order to produce good results by the use of oil, and to accomplish anything more than the temporary laying of dust, it is necessary to use oils which have an asphaltic base, — the larger the percentage of asphalt, speaking generally, the better the results.

The oils should actually contain an asphaltic base, and not be merely oils or residuums which are claimed to contain such a base. The lighter oils with an asphaltic base, as has been stated elsewhere, will maintain a road that is in proper condition, to wit, with no dust pockets or loose stone, using about $\frac{1}{2}$ gallon to the square yard of surface treated, and covering with pea stone, sharp sand or gravel, for one year, without serious deterioration.

It appears now that the heavier oils, which must be heated in order to be applied, will last for a longer time without being re-treated. The indications are also that these heavier oils, possibly enriched with the right quantity of asphalt, will

make a permanent roadbed when mixed in proper proportions with sand, and will very likely prove effective in resurfacing old macadam roads if a layer is put on 2 inches thick in the center and 1 inch on the sides, compacted and rolled.

Undoubtedly such roads will require additional coats of oil, sand or gravel from time to time. The experience of the commission in regard to these materials is the same as is indicated in reports on oiled roads in California and in reports of the Agricultural Department in Washington.

TAR PRODUCTS.

The experiments of the commission and the analyses of Mr. Clark are in accord with the experience in the use of various tar products both in this country and abroad, so far as can be learned. Experience everywhere shows that different so-called tars vary very much in quality, even when they are secured from the same plant.

Generally speaking, when a permanent binder is desired, good results are obtained only when a refined tar is used, or a tar and pitch mixture, which makes a material similar to refined tar, and when the material used has the proper specific gravity and contains the proper ingredients. Unrefined tars vary so much in quality and character, and vary so much from time to time, that it is almost impossible to be sure of obtaining good results.

It can be stated, generally, from the experience of the commission, and from experience elsewhere, that it is essential that the tars used should not have been overheated, and must not contain too much free carbon; they must have been refined, and the ammoniacal liquor, water and volatile products must have been eliminated, otherwise one can be sure that the results will not be satisfactory. The reports of experts seem to indicate that the best quality of tar is procured from plants where the tar is not overheated, and that such plants are usually where coke or coal-gas tar is made, but that where water-gas tar is manufactured, or water-gas tar and coal-gas tar are both manufactured, the residuum tar products are likely to be poor and to contain too much free carbon.¹

¹ See Bulletin No. 34, United States Department of Agriculture, Office of Public Roads.

The commission does not feel justified at this time in making any more than a few general statements as to its experiments, because the roads have not been constructed long enough to demonstrate how the various materials will wear or how they may be affected by frost.

Experience has shown, also, that if ordinary tar is heated for two hours or more a very large proportion of the lighter products will be expelled, and the quality will be much improved. Of course, if refined tar is bought in the first instance this is not necessary.

It also seems probable that in many localities, if ordinary gas-house tar is used (which can often be obtained at a very low price at the local plant), and it is heated for two or three hours and thereby somewhat refined, that it can be mixed with a small quantity of pitch, asphalt or some other material (the nature of which can be ascertained by analyses and experiments by a competent chemist), and that good results can be obtained by using it in the proper manner upon the roads.

It also seems probable that tar can be mixed with hot sand, and put upon an old macadam road in a 2-inch section, thereby producing a sand-tar top which will withstand travel for a considerable time, when the road is in such a locality that its slipperiness will not be objectionable.

"SMALL TOWN" WORK.

The provisions of law authorizing the commission to improve roads in small towns under the "small town act," so called, grow in favor each succeeding year. There were more petitions filed in 1908 than in any previous year.

Since the law first went into effect, in 1900, 557 petitions have been received from small towns, and \$286,702.80 has been spent in towns of this character. About 163.9 miles of road have been improved, at an expense of a little over \$1,600 per mile.

The best material obtainable, generally gravel, has been used, and the culverts and bridges, where built, are of a modern and improved form of construction.

The Legislature of 1908 greatly improved the law in regard to small town roads. It provided, in chapter 279, that the

commission could expend yearly at least \$400 in any small town, the valuation of which is less than \$1,000,000, and if its road appropriation is not in excess of \$1,000 per year. Five per cent. of the total amount provided for the construction of State highways is now available for the building of roads in towns of this class. It provided further than an additional 5 per cent. of said total amount could be made available for small towns of under \$1,000,000 valuation, provided any such town makes an appropriation for the improvement of a specific road and petitions the commission for its improvement, the Board being authorized to spend an amount equal to the amount appropriated by the town.

During each of the past few years all of the money available for work in small towns has been applied for, and very many petitions for aid have had to be placed on file.

One new provision of the law, allowing the commission to expend a second 5 per cent. in towns of less than \$1,000,000 valuation if the town contributes as much as it asks the Commonwealth to expend, doubles the amount of money that such towns may receive from the State, and makes available three times as much money for expenditure for the improvement of roads in those towns, counting in the town's own appropriations.

Another provision of chapter 279 which will prove of great value is that authorizing the commission to make repairs to these roads which have been improved under its direction, and to charge the cost of the same, up to but not exceeding \$50 per mile per year, to the towns in which the roads are located.

In the past, some roads have been improved and then have been allowed to go to pieces through lack of the necessary yearly repairs, and thereby the first cost was almost, if not entirely, lost. It is hoped that the commission, acting under the authority of this statute, will be enabled to prove to the towns by the object lesson of their own roads that constant and yearly repairs will not only keep a good road in good condition, but will actually save a large amount of money in a series of years.

The commission appreciates the general and generous spirit of co-operation and approval which it finds in the small towns of the Commonwealth. The various officers throughout the

State appear to be working harmoniously with the Board toward better roads.

Various details relating to the small town work will be found in Appendix H.

The amount of money expended under the provisions of the small town act in the various years is shown in the following table:—

YEAR.	In Towns over \$1,000,000 Valuation.	In Towns under \$1,000,000 Valuation.	Total.
1900,	—	\$100 00	\$100 00
1901,	\$2,366 30	19,403 25	21,769 55
1902,	4,534 00	34,610 10	39,144 10
1903,	7,284 00	21,016 86	28,300 86
1904,	8,854 25	24,198 40	33,052 65
1905,	10,405 02	20,864 58	31,269 60
1906,	9,524 45	22,475 33	31,999 78
1907,	19,282 25	20,039 70	39,321 95
1908,	26,927 18	29,817 13	56,744 31
Total,	\$89,177 45	\$192,525 35	\$281,702 80

TREES ON STATE HIGHWAYS.

The commission has planted, under the direction and care of its forester, 1,184 trees during the past year. There are planted in the nursery of the commission 5,405 trees, of which 2,811 are ready for planting along the roads. The cost during the year per tree for planting was \$1.29. Seven hundred and forty-four trees have been required during the year to replace trees that have died or been destroyed.

The Board appropriates out of the loan fund \$5,000 a year for the purchase and planting of roadside trees, the care of its nursery, the payment of its forester and the trimming of roadside growths.

So many trees have been planted along the many lines of travel that the spaces where no trees previously existed have been fairly well filled in, and last year the Board planted fewer trees than in previous years, and proposes the same policy this year. A large share of the tree appropriation was last year and will be this year expended in the care of roadside growths.

As has been stated in previous reports, the commission especially desires to maintain the characteristic appearance of the New England roadside along the State highways, so far as it is possible to do this, and to maintain the shape, drainage and well-being of the road itself. Having this in mind, only objectionable natural growths along the roadsides have been removed, and the natural conditions have been allowed to remain so far as was possible or beneficial.

During the year it has cost \$684.22 to take care of the nursery, and in attending to the proper development of the trees and shrubs therein.

The experiment of planting sumach and other wild growths on the sandy banks of deep cuts, in order to keep the loose sand from sliding in or blowing about, has been tried with success on various roads, thus improving the appearance of the roadside, as well as preserving it from disintegration.

Other details concerning trees on State highways will be found in Appendix I.

The commission takes this opportunity to thank the State Superintendent for the Suppression of Gypsy and Brown-tail Moths for the excellent work which has been done by the department in clearing the State highway trees from moth pests. This year, as last, the commission placed at his disposal the appropriation made by the Legislature for this work, feeling that the money would be wisely and economically expended by a department engaged in that special work, and with a force of experts trained to their duties. A report relating to the work done, signed by Acting Superintendent L. H. Worthley, will be found in Appendix I.

STEAM ROAD ROLLERS AND OTHER MACHINERY.

The commission has now under its control 18 steam rollers and 3 portable stone-crushing plants.

The steam rollers were used 1,126.25 days on town work, in 32 different towns. All requests by towns for work of this character were granted excepting those from the towns of Monson, East Bridgewater and Norwell. The rollers were

also used 557.5 days on State highway repair work, on 65 different roads; 290 days by towns contracting for the building of State roads, including the "small town" roads; 162 days by private contractors on State highway contracts, and 1 roller was used 8 days at the State Farm at Bridgewater.

The total number of days' work during the year was 2,144, — an average of 119 days for each roller.

The total cost of maintenance for the year was \$2,046.36. Of this amount, \$1,000 was paid for practically rebuilding one of the rollers, No. 4, which has been in active service since 1896; and \$1,046.36 was expended for the ordinary repairs. Including the expense of supervision and inspection of the rollers, the average cost of such ordinary repairs has been 90.8 cents per day for each roller in use.

The number of requests from town officials for the use of the rollers has been somewhat in excess of those in previous years.

One of the rollers purchased in 1897 and one bought in 1898 have been sent to the shop this fall for thorough repairs.

One of the portable stone crushers has been located in the town of Sandisfield, where it has done good service; one was used in Hanson, and the third at Windsor. The stone for 1.33 miles of stone road was crushed by these machines, — a total of about 2,750 tons. The entire cost of operation, repairs and moving has been borne by the towns using the crushing machinery.

SURVEYS AND ENGINEERING OFFICE WORK.

During the fiscal year surveys for preliminary studies, estimates and lay-outs were made in 34 towns, — a total length of 45 miles; and grade stakes for construction work were set in 71 towns, covering a length of 60.44 miles, part of these stakes being for unfinished work of 1907.

Final surveys were made in 52 towns, covering a total length of 45.3 miles. Surveys for "small towns" were made in 41 towns covering a total length of 19.78 miles, and about 6 miles of miscellaneous surveys were made of roads to be constructed by towns.

Plans, profiles and cross-sections for roads in 47 towns were plotted, representing a length of 61.92 miles.

Layout plans have been made of roads in 49 towns, covering a total approximate length of 38 miles.

Plans to accompany decrees for street railway locations on State highways and for provisional locations have been made in 11 towns.

Plans and profiles have been made for roads improved under the "small town act" in 41 towns.

Preliminary estimates of the cost of work in 87 towns, representing a length of 88.8 miles, have been made, and final estimates of the cost of work in 72 towns, representing a length of 62.64 miles.

WORK OF THE AUTOMOBILE DEPARTMENT.

Licenses, Registration, etc.

During the past year 18,052 automobiles and 1,917 motor cycles have been registered; 17,500 number plates have been issued for automobiles, and 552 owners have transferred their old numbers to new cars.

Licenses have been issued to 5,865 private operators and 2,343 chauffeurs, and 4,962 chauffeurs have had their old licenses renewed.

As private operator's licenses do not have to be renewed yearly, to ascertain the total number of private operators who have been licensed one must add the licenses issued in other years, 20,682, making a total of 26,547 licenses issued to private operators and 7,305 licenses issued to professional chauffeurs up to the present time.

The amount of money received from this is accurately shown in the table in Appendix J. The amount of fees collected from various sources was very nearly \$121,500.

The expense connected with the issuing of licenses, registration of cars, cost of number plates furnished, the investigation and examination of chauffeurs, etc., in round numbers is about \$35,000 a year, which leaves something over \$85,000 which will be available for use on the highways, in addition to the money that is appropriated by the Legislature.

Examination of Chauffeurs.

Examinations have been held in Boston and in ten other cities of the Commonwealth regularly every week or fortnight, and special examinations have been held in four other places.

The number of people applying for examination has greatly increased during the year, nearly twice as many people applying for examination in 1908 as in 1907, in the same months.

During the year there were 3,290 examinations; 527 of the applicants required a second examination; 79, a third; 15, a fourth; 2, a fifth; and 1, a sixth; making a total of 624 applicants who were re-examined.

The percentage of failures was much larger in 1908 than in 1907. In 1907 over 12 per cent. failed on the first examination, and in 1908 over 27 per cent. failed.

In 1907 over 8 per cent. were finally rejected and received no license, and in 1908 over 10 per cent. This conclusively shows the necessity for examinations.

The examinations consist of a written examination and an actual test of operation upon the road.

The questions in the written examination are all entirely practical, and relate to the law of the road and the regulations concerning the operation of automobiles, with a few simple questions as to the mode of operating them, and in regard to the machinery, etc., but no technical questions are asked, and no questions which any one who was fit to operate an automobile upon the road should be unable to answer. They are not intended to show that the applicant understands how to take care of or repair an automobile.

The written examination counts 50 per cent. and the road test counts 50 per cent., and no one is given a license who is unable to pass both the road test and the written examination. The road test consists of the simple operation of a car, and operation through traffic, etc.

The commission was authorized by the Legislature of last year to appoint investigators and examiners, not exceeding four in number. This law took effect in July, 1908, and two officers were appointed at about that time. Before this law took effect,

the commission had appointed two examiners, who examined all applicants for chauffeurs' licenses.

With 3,290 examinations during the year and with the large number of accidents and complaints which have to be investigated, it is very evident that four investigators and examiners will not be sufficient to properly do all of the work that ought to be done.

The Safe Roads Automobile Association, a voluntary association of automobile owners, has probably investigated as many cases as the commission; and we are informed that the association intends to give up its investigator on Jan. 1, 1909, because the State has now some investigators of its own.

It is extremely probable, therefore, that the commission ought to appoint more investigators and examiners, and this would be absolutely necessary at once if the commission were to examine applicants for private operators' licenses, as there were 5,865 persons who applied for such licenses last year.

It seems desirable, in many respects, that all persons should be thoroughly examined before receiving licenses to operate automobiles; and if the Legislature decides to adopt the system that is now in vogue in Rhode Island and Connecticut and many of the other States, of having licenses expire yearly and having court convictions endorsed on the licenses, the commission can examine any applicant for the renewal of his license when there is any reason to suspect that he is not a competent operator.

The commission would therefore recommend that the limitation contained in section 2, chapter 648 of the Acts of the year 1908, which only authorized the commission to appoint four investigators and examiners, be stricken out.

Court Records.

During the year the commission received from the courts 2,570 abstracts of the action taken in automobile cases. These abstracts show that 2,360 people were convicted of various offences against the automobile laws and regulations in the lower court. Of these, 161 appealed, 102 were found not guilty, 249 complaints were placed on file and 44 were not pressed; 1,491 were for overspeeding; and 48 were for operating under the influence of intoxicating liquor, or recklessly.

The remainder were for various violations of the law, regulations or park rules. According to the report sent to the commission over \$26,000 was collected in fines. (See Appendix J.)

Investigations — Hearings.

Since the law went into effect authorizing the employment of investigators and the investigation of accidents, a summary of automobile accidents has been kept, based upon the press clippings received. Details may be found in Appendix J.

From July 10 to Dec. 1, 1908, there were 607 collisions, 379 of which were in the daytime and 228 after dark; 214 were on country roads and 393 on city or town streets.

As a result of these accidents 13 people were killed and 496 were injured.

The automobile accidents which were reported were looked over, and the facts were investigated where it appeared that improper operation might have been the cause of the accident.

The Safe Roads Automobile Association and its investigator have investigated a large number of cases, and have co-operated with the commission, so that investigations were not duplicated.

The investigators of the commission have thoroughly investigated 59 accidents and complaints, and they have prosecuted in the courts and secured the conviction of 3 violators of the automobile law.

The reports of the investigators are made to the commission, based upon carefully prepared data obtained first hand, generally with diagrams of the scene of the accident and with signed statements of the witnesses.

In 1908 the commission was authorized, of its own motion, to suspend the license of any operator whom it believed to be operating improperly, or whom it believed to be an improper person to operate. It also was required to suspend the license of any operator when the death of any person resulted from any accident in which the automobile which he was operating was involved, and it was not to reissue the same unless, after a hearing or upon investigation, it decided that the accident happened without serious fault on the part of the operator of the automobile.

During the year the commission held 74 formal hearings in

automobile cases, and in response to informal complaints, in which it only seemed necessary to send a warning letter to the operator, as the fault was not serious, 131 letters of this character were written to the owners or operators complained of.

Suspension and Revocation of Licenses.

During the year the commission revoked 44 licenses, suspended 51 licenses, and revoked the registration certificate of an owner who held no license, — making a total of 96 licenses or registration certificates suspended or revoked. Of this number, 34 were because of court records sent to the commission under the law; 22 were based upon investigations made by the commission; 37 were after a formal hearing; and 3 were on complaints on which no formal hearings were held.

There were 12 deaths after the law took effect, viz., on July 13. In 7 of these cases the licenses of the operators were revoked; in 2 cases the operators' licenses were suspended, and reinstated after a hearing, because the commission found that the accidents happened without serious fault on the part of the operators; and no action was taken in the remaining 3 cases, two of the operators having died as a result of the accidents, and the third having no Massachusetts license.

As stated above, in 37 of the cases, where formal hearings were given, the licenses of the operators or the registration certificates of the owners were suspended or revoked. The complaints were dismissed in 19 cases and placed on file in 5 cases; the operators were cautioned in 11 cases; and in 2 cases the applications of the operators for new licenses were held up for sixty days. There were, of course, many cases investigated where no action was necessary or was taken.

The causes for the revocation and suspension of licenses were as follows: —

- 13 for operating under the influence of intoxicating liquor.
- 40 for reckless operation.
- 4 for taking automobile without owner's consent.
- 5 for three convictions of overspeeding.
- 18 for improper operation.
- 9 for death cases.
- 7 for other offences.

Codification of Automobile Laws.

Under the Resolves of 1908, chapter 127, the commission was directed to prepare and present a codification of the laws relating to motor vehicles and the operation thereof. This has been done, and it will be presented to the Legislature in a separate report.

At the conference of the Governors of the New England States, held in Boston, November 23 and 24, one of the subjects under consideration, and one which was very favorably considered, was the formulation and adoption of a uniform law governing the operation of motor vehicles and the conduct of the operators thereof, throughout the New England States. The commission was requested by Governor Guild, acting upon the request of the Governors of the other New England States, to prepare a uniform law for all of the New England States, embodying therein the provisions of the law of each State which seemed most desirable.

The commission drafted such a uniform law, and formulated a few of the reasons why the various provisions included therein were selected. The proposed uniform law was presented to Governor Guild and was by him forwarded to the Governors of all the New England States, with the idea that the draft would be looked over, and that such changes as might be suggested and approved should be adopted by all of the New England States. In this draft there were many provisions new to our law, but based upon the approved provisions of the laws of the other States.

In making the codification for Massachusetts, the commission did not feel at liberty, however, to insert all of these provisions, because they constitute, in some instances, very material changes from the present law, although, in the opinion of the commission, the changes are desirable.

The commission recommends, therefore, that in considering the laws to be adopted at the coming session of the Legislature, governing the operation of motor vehicles and the conduct of the operators thereof, the Legislature consider not only the codification which will be presented, but also the proposed uniform law, a draft of which will be submitted to the Legislature, together with the codification, or in a separate report.

Damage to Roads — Graded Registration Fees.

As has been said elsewhere in relation to the maintenance of State highways, the advent of the automobile has doubled the expense of maintaining the 740 miles of State highways that exist in this Commonwealth. Under the head of "Maintenance" it is stated that in 1908, of the total amount of \$313,698, estimated by the engineers of this commission as being necessary to restore the State highways, \$166,281 was chargeable to automobile travel, and that for the year 1909, of the total amount of \$684,800, estimated as being necessary for such work, \$366,400 is chargeable to the automobiles.

It is now well recognized everywhere, not only in this country, but abroad, that automobiles, especially at any speed much in excess of 15 miles an hour, do a tremendous damage to the roads, largely in excess of that done by any other class of vehicles. This is especially true at high speeds.

Experiments conducted by the authorities in Washington have demonstrated that this damage is largely due to the shearing or tractive force which is exercised by the back wheels, especially at high speeds, in order to propel the cars, and overcome not only the weight of the cars and the grade and resistance of the road surface, but also to overcome the resistance of the air, which becomes a serious factor at high speeds, as an automobile presents about 9 square feet of surface, and as the air resistance increases substantially as the cube of the speed.

The commission has felt, and has recommended in the past, that motor vehicles should be required to pay a registration fee based upon horse power, or upon some other basis, taking into consideration the value of the car, its speed, weight, power, etc.; and that the money so collected should, after paying the necessary expenses of examination, investigations, etc., be applicable to the repair and maintenance of State highways.

The only other way in which the State highways of Massachusetts can be preserved until the time when some method of construction can be adopted and applied that will prevent this extensive damage, is to absolutely prohibit any speed greater than 15 miles an hour, or 20 at the outside, and to have the

law universally enforced. All experiments have shown that it is the high speeds that cause the damage.

In presenting a uniform law, the commission drafted a provision for the collection of a fee graded upon horse power. The proposed law provides that the commission shall determine the horse power; and this, of course, would be done upon some arbitrary and uniform formula that could be easily made by the commission or by experts selected by it.

The commission recommends the careful consideration of the advisability of adopting some such method of obtaining adequate fees from automobile owners, and thereby securing the money necessary to keep the main highways of Massachusetts in reasonably good condition. The amount that would probably be raised by a graded fee, also the relative cost of such a fee as compared with the tire cost and with the cost of liability insurance which is now carried by the owners of most automobiles, will be found in Appendix J.

Roughly speaking, unless the expense of administration increases, this graded fee, if adopted, would raise about \$225,000 that could be applied to the maintenance and reconstruction of State highways, as against about \$80,000 which is available under the present law.

As a very large sum of money, probably from \$300 to \$400 per mile per year, will be necessary in order to maintain and preserve the State highways, it seems fair that a part of the necessary money should be collected from the owners of automobiles who not only use the roads, but do an amount of damage that is greater than the amount of money that will be raised by the suggested graded fee.

The commission, therefore, recommends this matter to the careful consideration of the Legislature.

LOCATION AND LAY-OUT OF STATE HIGHWAYS.

Several questions have arisen lately which involve the location and width of location of State highways, and the authority of the commission to lay out State highways upon lines differing from those of the existing ways has been questioned.

Acting upon the general understanding which the commission

has had of the intent of the Legislature, that State highways were to be constructed with particular reference to their use as highways for the transportation of goods and for their use by vehicles generally, the commission has, in some cases, laid out the State highways at lesser widths of location than the existing ways, so as not to burden the Commonwealth with unnecessary expenses of maintenance, and so as to minimize its liabilities for damages.

This is particularly true in some of the towns where the highways were laid out very wide by the town or county authorities, and where all that was needed for the State highway was sufficient width for the travelled way, gutters, etc. In such cases a considerable width has been left on each side of the State highway which is still within the limits of the way laid out by the town or county, which width is needed in some instances for village street purposes, for parks, etc.

In other cases it has been impossible, without great and unnecessary expense, to determine the exact location and boundaries of existing highways. Many of them were laid out one or two hundred years ago, and the records are lost or incomplete.

The commission has, therefore, established its own lines by actual surveys on the ground, and has put in its monuments determining for all time the location of the State highways. The question has been raised this year as to whether such a lay-out and location operated as a discontinuance of the highway between the lines of the State highway and the wall or fence. The old lines are often irregular, and in many cases awkward-shaped pieces of land are left between the State highway lines and the wall or fence.

It has seemed to the commission desirable to include in its lay-outs only as much land as is needed for State highway purposes, for reasons stated above. In many instances, however, the municipalities may have use for the remainder of the land which is not needed for the State highway, and the commission would, therefore, respectfully suggest that it may be desirable to amend the existing law so as to make its meaning clear, and, if necessary, to ratify and confirm the lay-outs already made.

ENGINEERS AND CLERKS.

Austin B. Fletcher has continued as secretary of the Board during the year, and, subject to the instructions of the commission, he has had the direction of all departments of the work.

In September, 1908, owing to the great increase in the duties of the secretary, due chiefly to the telephone and automobile activities, Frank I. Bieler was appointed assistant secretary.

Andrew M. Lovis and Sidney A. Parsons, first and second assistant engineers, respectively, have had charge of the surveying parties and of the office engineering work.

William R. Farrington, Charles H. Howes, Frank H. Joyner, John A. Johnston and Franklin C. Pillsbury, division engineers, have had charge of construction work in the field.

The following men have been employed as resident engineers of the first class: Everell J. Nichols, George R. Brown, Albert D. Dadley, Daniel H. Dickinson (3 months), Percival H. Everett, Lyman L. Gerry, William P. Hammersley, Howard C. Holden, Frank H. Morris, Hiram D. Phillips, C. Alden Welton (8 months) and David H. Winslow (10 months).

The following men have been employed as resident engineers of the second class: Emory S. Bingham, Frederick H. Cunningham (8 months), George A. Curtis, Martin W. Fisher, Louis T. C. Loring, George D. Marshall, Charles H. Norton, William M. Stodder and Robert A. Vesper.

The following men have been employed as resident engineers of the third class: William G. Burns, Herbert C. Poore, Fred D. Sabin (10½ months) and Charles S. Tinkham.

In addition to the above the following men have been employed as resident engineers: Alfred T. Edwards (5 months), Frederick Leonard (1½ month), Andrew S. Odom (3 months), Harry O. Parker (4 months), Erwin M. Stevens (6½ months), Ralph Wales (3 months) and Grenville N. Willis (7 months).

The following men have been employed on survey work: chiefs of party, Emory N. Colburn, Frederick H. Cunningham (4 months), David W. Merrill, Harold R. Starbird (7 months) and Fred M. Stuart. Transitmen: Rufus B. Allyn (5 months), Walter W. Clifford (2 months), Ralph C. Heath (10 months), Edward L. Lincoln (11½ months), Andrew S.

Odom (9 months), Harry O. Parker (8 months) and Ralph Wales (3 months). Rodmen: John M. Bean (10 months), Wentworth N. Chittenden (7½ months), Fred F. Piper (2½ months), Augustus J. C. Rayner (10 months) and Francis W. K. Smith (2 months).

The following men have been employed as draughtsmen and office assistants: C. Ridgley Brown, John S. Edmands (5 months), Arthur Larrabee, Edward F. Odell, Ray E. Shedd (5 months), James H. Taylor and William N. Wade.

The following have been employed as stenographers by the division engineers: Ernest F. Shay (7 months), Raymond D. Spencer (1½ months), Katherine E. Horn (11 months), Clara C. Joyner (10 months), Helena Brock and Alice G. Kingston (9½ months).

Elting J. O'Hara has had charge of the work in the automobile department, under the direction of the secretary, and the following clerks have also been employed in that department during the past year: Edward A. Austin (11 months), Joseph J. Callahan (10 months), Thomas F. Callanan (½ month), Ralph S. Damon (½ month), Daniel J. Honan, Edward B. Marsh (8½ months), Edward A. McGonagle (8 months), John O'Connell, Patrick S. O'Leary (8½ months), William J. J. O'Neil (2½ months), Joseph J. Wilson (3 months), Charles H. W. Wood, Ethel S. Brocklebank (6 months), Anastasia M. C. Cody (1½ months), Inez M. Felt, Effie M. Fife (½ month), Margaret A. Foley (11 months), Monica Foley, Helen Jones (1 month), Agnes F. Kennard (5 months), Kathryn L. Nolan (1 month), Ida L. Poore, Cora L. Rouillard (½ month) and Georgia E. Shaw (1½ months). Alice U. Coughlin (4 months), Hannah F. Dowd, Mary A. Flavin (4½ months), Sarah T. Riley (10 months) and Blanche E. Webster have been employed as stenographers.

Fred L. Austin and Chauncey G. Hubbell have been employed as examiners of chauffeurs. Alfred F. Foote (4½ months) and Paul H. Weinert (4 months) have served as inspectors and examiners.

The clerical force employed has been as follows: John M. McCarthy, chief clerk; Mary A. Riley, Nellie M. Barlow, Henrietta E. Briggs and Fred Fair as stenographers; Alice M.

Worthen as accountant; George F. Murdock (9 months) and Joseph M. Holmes (3 months) as copyists; and Joseph M. Holmes (9 months) and James L. Regan (3 months) as clerks.

Charles A. Morgan (7 months), James L. Regan (2½ months) and Francis M. Cola (2½ months) have been employed as messengers.

Mark H. Sawyer has been employed as inspector of road-building machinery.

EXPENDITURES.

The following is a summary of the expenditures of the Massachusetts Highway Commission from Dec. 1, 1907, to Nov. 30, 1908:—

CONSTRUCTION EXPENDITURES.

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Barnstable County.</i>			
Barnstable,	1897	\$32 97	
Barnstable,	1907	5,309 28	
Bourne,	1907	347 63	
Brewster,	1895	57 44	
Brewster,	1896	57 44	
Brewster (2),	1897	114 88	
Brewster,	1908	104 18	
Chatham,	1899	31 30	
Chatham,	1901	77 02	
Chatham,	1902	31 30	
Chatham,	1905	62 58	
Chatham,	1907	9,498 23	
Dennis,	1895	42 66	
Dennis,	1896	42 66	
Dennis,	1898	42 66	
Falmouth,	1908	3,607 32	
Harwich,	1899	39 15	
Harwich,	1903	39 15	
Harwich,	1908	3,646 33	
Orleans,	1900	11 00	
Orleans,	1902	11 00	
Orleans,	1908	1,458 53	
Yarmouth (north),	1894	15 10	
Yarmouth (north),	1895	15 09	
Yarmouth (north),	1896	118 34	
Yarmouth (south),	1895	586 59	
			\$25,399 83
<i>Amount carried forward,</i>			\$25,399 83

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Amount brought forward,</i>	.	.	\$25,399 83
<i>Berkshire County.</i>			
Adams,	1897	\$7 80	
Adams,	1908	1,057 14	
Becket,	1907	233 74	
Cheshire,	1899	6 23	
Cheshire,	1900	6 23	
Cheshire,	1901	6 23	
Cheshire,	1902	123 09	
Clarksburg,	1907	45 15	
Hancock,	1895	44 09	
Hancock,	1897	44 09	
Hancock,	1898	44 10	
Hancock,	1899	44 10	
Hancock (1907 contract),	—	5,972 53	
Hinsdale,	1902	10 34	
Lee,	1894	3 19	
Lee,	1895	3 19	
Lee,	1896	3 20	
Lee,	1900	9 96	
Lee (west),	1906	1,673 67	
Lee (south),	1906	10 10	
Lee,	1908	2,343 76	
Lenox,	1899	3 73	
Lenox,	1900	3 73	
Lenox,	1904	6 68	
Lenox,	1905	6 68	
Lenox,	1906	8,654 79	
North Adams,	1894	9 88	
North Adams,	1896	194 44	
North Adams,	1900	4 59	
North Adams,	1901	4 59	
North Adams,	1902	4 60	
North Adams,	1903	4 60	
Pittsfield,	1894	25 24	
Pittsfield,	1897	50 48	
Pittsfield,	1898	25 24	
Pittsfield,	1904	4 46	
Pittsfield,	1905	4 46	
Pittsfield,	1906	20 22	
Pittsfield,	1907	7,401 88	
Richmond,	1897	8 46	
Richmond,	1898	8 46	
Richmond,	1899	8 46	
Richmond,	1901	8 46	
Richmond,	1902	8 46	
Richmond,	1903	8 46	
<i>Amounts carried forward,</i>	.	\$28,172 98	\$25,399 83

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Amounts brought forward,</i>		\$28,172 98	\$25,399 83
Richmond,	1904	8 45	
Richmond,	1905	8 45	
Richmond,	1907	3,969 13	
Stockbridge,	1905	8 99	
Stockbridge,	1906	3,725 25	
Williamstown,	1895	6 48	
Williamstown,	1896	6 47	
Williamstown,	1897	965 87	
Windsor,	1907	2,281 26	
Windsor (1908 contract), . . .	1907	3,072 93	
			42,226 26
<i>Bristol County.</i>			
Dartmouth,	1905	\$661 17	
Dighton,	1908	317 74	
Freetown,	1908	6,407 84	
Norton,	1908	4,217 09	
Rehoboth,	1907	1,622 32	
Rehoboth,	1908	9,140 65	
Swansea,	1907	597 78	
Taunton,	1907	5,575 29	
			28,539 88
<i>Dukes County.</i>			
Chilmark,	1908	\$543 33	
			543 33
<i>Essex County.</i>			
Amesbury,	1907	\$978 75	
Andover,	1897	10 84	
Andover,	1899	10 84	
Andover,	1900	10 84	
Andover,	1902	10 84	
Andover,	1903	10 85	
Beverly,	1905	292 18	
Gloucester,	1895	99 63	
Gloucester,	1907	5,234 71	
Haverhill,	1906	5,502 34	
Ipswich,	1907	584 36	
Ipswich,	1908	4,783 95	
Lynn,	1901	8,376 52	
Methuen,	1906-07	3,823 66	
Methuen,	1908	5,462 37	
Newbury,	1899	47 09	
Newbury,	—	871 92	
North Andover,	1907	6,404 71	
Rowley,	1907	897 40	
Salem,	—	340 65	
Swampscott,	—	3,917 42	
			47,671 87
<i>Amount carried forward,</i>			\$144,381 17

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Amount brought forward,</i>	.	.	\$144,381 17
<i>Franklin County.</i>			
Deerfield,	1907	\$835 72	
Deerfield,	1908	6,790 92	
Erving,	1907	233 74	
Greenfield,	1908	5,368 97	
Montague,	1898	39 26	
Montague,	1899	39 26	
Montague,	1901	39 27	
Montague,	1905	9,534 91	
Orange,	1894	22 96	
Orange,	1895	22 96	
Orange,	1897	45 92	
Sunderland,	1907	5 45	
			22,979 34
<i>Hampden County.</i>			
Agawam,	1903	\$29 56	
Agawam,	1904	29 56	
Agawam,	1906	29 56	
Agawam,	1907	350 61	
Chester,	1899	413 74	
Chester,	1900	38 90	
Chester,	1901	38 90	
Chester,	1902	38 90	
Chester,	1904	38 91	
Chicopee,	1898	2 55	
Chicopee,	1907	955 84	
Monson,	1908	2,823 92	
Palmer,	1905	12,123 84	
Palmer,	1908	33,210 19	
Palmer,	1908	8,037 30	
Westfield,	1899	21 10	
Westfield,	1900	21 10	
Westfield,	1901	21 10	
Westfield,	1902	21 10	
Wilbraham,	1904	1 80	
			58,248 48
<i>Hampshire County.</i>			
Amherst,	1901	\$23 79	
Belchertown,	1907	4,766 63	
Belchertown,	1908	6,053 02	
Easthampton,	1895	14 88	
Easthampton,	1896	14 89	
Easthampton,	1900	36 80	
Goshen,	1908	6,610 57	
Granby,	1908	2,889 30	
Hadley,	1894	13 16	
<i>Amounts carried forward,</i>	.	\$20,423 04	\$225,608 99

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Amounts brought forward,</i>		\$20,423 04	\$225,608 99
Hadley,	1895	13 16	
Hadley,	1896	13 16	
Hadley,	1897	13 16	
Hadley,	1898	13 15	
Hadley,	1899	13 15	
Hadley,	1902	13 15	
Hadley,	1903	13 15	
Hadley,	1904	13 15	
Hatfield,	1901	25 40	
Hatfield,	1906	25 40	
Hatfield,	1908	5,551 95	
Huntington,	1903	11 80	
Huntington,	1906	11 81	
Northampton,	1894	31 39	
Northampton,	1905	1,151 02	
Northampton,	1906	53 71	
Ware,	1908	7,627 82	
<i>Middlesex County.</i>			35,018 57
Acton,	1907	\$933 12	
Ashby,	1894	13 08	
Ashby,	1895	13 08	
Ashby,	1896	13 08	
Ashby,	1897	13 08	
Ashby,	1898	13 08	
Ashby,	1899	13 09	
Ashby (bridge),	—	7,566 31	
Billerica,	1908	1,239 32	
Boxborough,	1907	985 63	
Burlington,	1906	37 34	
Chelmsford,	1898	58 37	
Chelmsford,	1899	58 37	
Chelmsford,	1901	571 80	
Chelmsford,	1908	7,205 82	
Dracut,	1907	5,894 21	
Groton (bridge),	—	9,835 76	
Holliston,	1906	907 04	
Holliston,	1907	1,814 64	
Hudson,	1907	233 74	
Littleton,	1908	838 22	
Lowell (north),	1897	254 70	
Lowell (south),	1897	119 45	
Lowell (south),	1898	119 45	
Marlborough,	1897	199 35	
Marlborough,	1908	2,245 79	
Medford,	1907	6,266 50	
<i>Amounts carried forward,</i>		\$47,463 42	\$260,627 56

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Amounts brought forward,</i>		\$47,463 42	\$260,627 56
Natick,	1901	12 00	
Natick,	1903	12 01	
North Reading,	1897	14 31	
North Reading,	1898	14 32	
North Reading,	1901	14 32	
Pepperell (bridge),	—	9,835 77	
Reading,	1899	22 40	
Reading,	1900	11 94	
Reading,	1902	11 94	
Reading,	1904	11 93	
Somerville,	1908	27,051 51	
Stoneham,	1897	21 19	
Stoneham,	1900	8 89	
Stoneham,	1901	8 90	
Tewksbury,	1906	51 77	
Townsend,	1896	15 75	
Townsend,	1897	15 75	
Townsend,	1900	31 52	
Townsend,	1901	15 76	
Townsend,	1902	15 76	
Townsend,	1907	356 06	
Tyngsborough,	1895	226 15	
Tyngsborough,	1896	226 15	
Wayland,	1900	451 25	
Wilmington,	1907	1,239 93	
Wilmington,	1908	4,997 10	
			92,157 80
<i>Norfolk County.</i>			
Bellingham,	1905	\$25 71	
Canton,	1907	1,066 66	
Canton,	1908	5,227 38	
Dover,	1907	2,195 79	
Franklin,	1907	4,402 69	
Norfolk,	1895	17 99	
Norwood,	1895	6 33	
Norwood,	1896	6 34	
Norwood,	1897	6 34	
Norwood,	1899	6 34	
Sharon,	1908	3,715 83	
Walpole,	1894	5 25	
Walpole,	1895	5 26	
Walpole,	1897	15 32	
Walpole,	1900	7 65	
Wellesley,	1901	8 22	
Westwood,	1899	12 28	
Weymouth,	1907	522 70	
<i>Amounts carried forward,</i>		\$17,254 08	\$352,785 36

CONSTRUCTION EXPENDITURES — *Continued.*

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Amounts brought forward,</i>		\$17,254 08	\$352,785 36
Weymouth,	1908	1,563 42	
Wrentham,	1897	7 46	
Wrentham,	1898	7 46	
Wrentham,	1902	7 47	
			18,839 89
<i>Plymouth County.</i>			
Abington,	1907	\$350 61	
Bridgewater,	1907	1,027 65	
Bridgewater,	1908	610 46	
Duxbury,	1908	4,980 07	
Hanover,	1908	3,977 00	
Kingston,	1905	127 85	
Marshfield,	1907	1 51	
Middleborough,	1907	1,041 82	
Middleborough,	1908	6,099 42	
Plymouth,	1907	6,152 99	
Scituate,	1906	23 96	
Scituate,	1908	6,163 37	
Wareham,	1907	356 07	
Wareham,	1908	4,721 79	
Wareham (experimental work),	1908	885 66	
			36,520 23
<i>Worcester County.</i>			
Athol,	1895	\$38 52	
Athol,	1896	38 51	
Auburn,	1895	12 66	
Auburn,	1896	12 66	
Auburn,	1897	12 66	
Auburn,	1898	12 66	
Auburn,	1899	12 66	
Auburn,	1901	12 65	
Blackstone,	1905	8 12	
Brookfield,	1897	8 10	
Brookfield,	1898	8 10	
Brookfield,	1900	8 10	
Brookfield,	1902	8 10	
Brookfield,	1903	8 09	
Charlton,	1907	4,260 26	
Fitchburg,	1894	13 21	
Fitchburg,	1895	13 22	
Fitchburg,	1900	10 59	
Fitchburg,	1901	10 59	
Fitchburg,	1903	10 60	
Fitchburg,	1904	10 60	
Gardner,	1897	42 39	
Gardner,	1898	42 39	
<i>Amounts brought forward,</i>		\$4,615 44	\$408,145 48

CONSTRUCTION EXPENDITURES — *Concluded.*

TOWN OR CITY.	Year of Lay-out.	Amount.	Totals.
<i>Amounts brought forward,</i>		\$4,615 44	\$408,145 48
Gardner,	1900	499 13	
Holden,	1908	704 85	
Leicester,	1896	18 51	
Leicester,	1898	18 51	
Leicester (bridge),	—	1,129 76	
Leicester,	1899	18 51	
North Brookfield,	1908	6,158 19	
Oxford,	1906	93 83	
Oxford,	1908	2,788 90	
Princeton,	1897	13 30	
Princeton,	1903	492 76	
Southborough,	1907	1,615 94	
Southbridge,	1907	750 63	
Spencer,	1899	11 39	
Spencer,	1900	22 78	
Sterling,	1907	6,751 43	
Sturbridge,	1907	577 92	
Sutton,	1903	5 35	
Templeton,	1899	8 26	
Templeton,	1901	8 27	
Templeton,	1902	8 27	
Templeton,	1903	8 27	
Templeton,	1908	9,121 53	
Warren,	1896	4 05	
Warren,	1897	4 06	
Warren,	1898	4 06	
Warren,	1899	4 06	
Warren,	1900	4 06	
Warren,	1901	4 06	
Warren,	1907	6,404 19	
Warren,	1908	4,632 13	
Webster,	1908	5,993 14	
West Boylston,	1897	2,596 44	
West Brookfield,	1899	8 30	
West Brookfield,	1900	8 30	
West Brookfield,	1901	8 31	
Westminster,	1894	10 30	
Westminster,	1895	10 30	
Westminster,	1896	10 30	
Westminster,	1897	10 30	
Westminster,	1898	10 30	
Westminster,	1899	10 31	
Westminster,	1903	3,653 28	
Winchendon (first),	1907	3,733 88	
Winchendon (second),	1907	1,078 76	
			63,644 62
			\$471,790 10

REPAIR AND MAINTENANCE EXPENDITURES.

[Under chapter 157 of the Acts of 1907 and chapters 212 and 657 of the Acts of 1908.]

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapter 157, 1907.	Chapters 212 and 657, 1908.		
<i>Barnstable County.</i>				
Barnstable,	—	\$405 79	\$405 79	
Bourne,	—	759 20	759 20	
Brewster,	—	605 99	605 99	
Chatham,	—	311 02	311 02	
Dennis,	—	491 67	491 67	
Eastham,	—	494 26	494 26	
Falmouth,	—	1,057 15	1,057 15	
Harwich,	—	430 77	430 77	
Orleans,	—	333 31	333 31	
Provincetown,	—	82 51	82 51	
Sandwich,	—	306 24	306 24	
Truro,	—	406 52	406 52	
Wellfleet,	—	750 14	750 14	
Yarmouth (north),	—	589 14	589 14	
Yarmouth (south),	—	362 74	362 74	
	—	\$7,386 45	\$7,386 45	\$7,386 45
<i>Berkshire County.</i>				
Adams,	—	\$41 51	\$41 51	
Becket,	—	325 16	325 16	
Cheshire,	—	595 55	595 55	
Clarksburg,	—	94 97	94 97	
Dalton,	—	430 76	430 76	
Great Barrington,	—	2,393 33	2,393 33	
Hancock,	—	954 06	954 06	
Hinsdale,	—	102 85	102 85	
Lee,	—	1,757 15	1,757 15	
Lenox,	—	3,819 74	3,819 74	
North Adams,	—	4,293 22	4,293 22	
Pittsfield,	—	3,428 42	3,428 42	
Richmond,	—	895 19	895 19	
Stockbridge,	—	1,675 28	1,675 28	
Williamstown,	—	1,283 06	1,283 06	
Windsor,	—	161 86	161 86	
	—	\$22,252 11	\$22,252 11	22,252 11
<i>Bristol County.</i>				
Acushnet,	—	\$285 53	\$285 53	
Attleborough,	—	225 58	225 58	
Berkley,	—	164 19	164 19	
Dartmouth,	—	378 77	378 77	
Dighton,	—	250 60	250 60	
Easton,	—	209 31	209 31	
<i>Am'ts carried for'd,</i>	—	\$1,513 98	\$1,513 98	\$29,638 56

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapter 157, 1907.	Chapters 212 and 657, 1908.		
<i>Am'ts brought for'd, .</i>	—	\$1,513 98	\$1,513 98	\$29,638 56
Fairhaven,	—	156 04	156 04	
Freetown,	—	194 03	194 03	
Mansfield,	—	129 83	129 83	
North Attleborough, . .	—	685 61	685 61	
Norton,	—	119 23	119 23	
Raynham,	—	103 65	103 65	
Rehoboth,	—	475 79	475 79	
Seekonk,	—	2,102 96	2,102 96	
Somerset,	—	1,422 37	1,422 37	
Swansea,	—	174 17	174 17	
Taunton,	—	1,879 24	1,879 24	
Westport,	\$15 04	153 99	169 03	
	\$15 04	\$9,110 89	\$9,125 93	9,125 93
<i>Dukes County.</i>				
Chilmark,	—	\$153 19	\$153 19	
Edgartown,	—	11 03	11 03	
Oak Bluffs,	—	302 05	302 05	
Tisbury,	—	149 29	149 29	
	—	\$615 56	\$615 56	615 56
<i>Essex County.</i>				
Amesbury,	—	\$262 29	\$262 29	
Andover,	—	2,309 64	2,309 64	
Beverly,	—	1,341 78	1,341 78	
Essex,	—	78 26	78 26	
Gloucester,	—	3,800 05	3,800 05	
Groveland,	—	262 57	262 57	
Hamilton,	—	861 77	861 77	
Haverhill,	—	390 24	390 24	
Ipswich,	—	122 61	122 61	
Lawrence,	—	1,019 87	1,019 87	
Lynn,	—	933 81	933 81	
Merrimac,	—	287 78	287 78	
Methuen,	—	383 04	383 04	
Newbury,	—	1,776 30	1,776 30	
Newburyport,	—	443 18	443 18	
North Andover,	—	91 06	91 06	
Rockport,	—	31 61	31 61	
Rowley,	—	56 25	56 25	
Salem,	—	6 59	6 59	
Salisbury,	—	709 79	709 79	
Saugus,	—	2,131 09	2,131 09	
Swampscott,	—	653 49	653 49	
<i>Am'ts carried for'd, .</i>	—	\$17,953 07	\$17,953 07	\$39,380 05

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapter 157, 1907.	Chapters 212 and 657, 1908.		
<i>Am'ts brought for'd, .</i>	—	\$17,953 07	\$17,953 07	\$39,380 05
Wenham,	—	1,774 52	1,774 52	
West Newbury, . .	—	696 35	696 35	
	—	\$20,423 94	\$20,423 94	20,423 94
<i>Franklin County.</i>				
Ashfield,	—	\$837 85	\$837 85	
Buckland,	—	673 30	673 30	
Charlemont, . . .	—	322 30	322 30	
Colrain,	—	160 78	160 78	
Deerfield,	—	554 11	554 11	
Erving,	—	436 53	436 53	
Greenfield,	—	160 38	160 38	
Montague,	—	140 57	140 57	
Northfield,	—	90 25	90 25	
Orange,	—	2,272 05	2,272 05	
Shelburne,	—	316 42	316 42	
Sunderland,	—	99 74	99 74	
Whately,	—	1,092 83	1,092 83	
	—	\$7,157 11	\$7,157 11	7,157 11
<i>Hampden County.</i>				
Agawam,	—	\$401 65	\$401 65	
Brimfield,	—	134 60	134 60	
Chester,	—	382 12	382 12	
Chicopee,	—	1,573 02	1,573 02	
East Longmeadow, .	—	54 66	54 66	
Monson,	—	86 12	86 12	
Palmer,	—	782 04	782 04	
Russell,	—	915 28	915 28	
Wales,	—	41 14	41 14	
West Springfield, .	—	227 70	227 70	
Westfield,	—	683 44	683 44	
Wilbraham,	\$91 06	918 83	1,009 89	
	\$91 06	\$6,200 60	\$6,291 66	6,291 66
<i>Hampshire County.</i>				
Amherst,	—	\$307 95	\$307 95	
Belchertown, . . .	—	204 24	204 24	
Easthampton, . . .	—	397 03	397 03	
Goshen,	—	929 31	929 31	
Granby,	—	231 94	231 94	
Hadley,	—	415 65	415 65	
Hatfield,	—	64 40	64 40	
<i>Am'ts carried for'd, .</i>	—	\$2,550 52	\$2,550 52	\$73,252 76

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapter 157, 1907.	Chapters 212 and 657, 1908.		
<i>Am'ts brought for'd, .</i>	—	\$2,550 52	\$2,550 52	\$73,252 76
Huntington, . . .	—	104 39	104 39	
Northampton, . . .	—	670 62	670 62	
South Hadley, . . .	—	1,449 57	1,449 57	
Southampton, . . .	—	7 91	7 91	
Ware, . . .	\$9 72	463 51	473 23	
Williamsburg, . . .	—	605 95	605 95	
	\$9 72	\$5,852 47	\$5,862 19	5,862 19
<i>Middlesex County.</i>				
Acton, . . .	—	\$1,008 77	\$1,008 77	
Ashby, . . .	—	277 25	277 25	
Ashland, . . .	—	46 69	46 69	
Bedford, . . .	—	348 37	348 37	
Billerica, . . .	—	147 27	147 27	
Boxborough, . . .	—	354 64	354 64	
Burlington, . . .	—	313 04	313 04	
Chelmsford, . . .	—	562 71	562 71	
Concord, . . .	—	387 61	387 61	
Dracut, . . .	—	7 38	7 38	
Framingham, . . .	—	107 43	107 43	
Groton, . . .	—	130 99	130 99	
Holliston, . . .	—	22 63	22 63	
Hudson, . . .	—	112 92	112 92	
Lexington, . . .	—	7,815 28	7,815 28	
Lincoln, . . .	—	2,626 89	2,626 89	
Littleton, . . .	—	460 74	460 74	
Lowell (north), . . .	—	161 53	161 53	
Lowell (south), . . .	—	262 11	262 11	
Marlborough, . . .	—	2,176 18	2,176 18	
Medford, . . .	—	3 27	3 27	
Melrose, . . .	—	63 89	63 89	
Natick, . . .	—	230 65	230 65	
Newton, . . .	—	1 25	1 25	
North Reading, . . .	—	1,057 60	1,057 60	
Reading, . . .	—	2,615 89	2,615 89	
Stoneham, . . .	—	3,395 59	3,395 59	
Sudbury, . . .	—	4,681 47	4,681 47	
Tewksbury, . . .	—	301 22	301 22	
Townsend, . . .	—	290 52	290 52	
Tyngsborough, . . .	—	524 77	524 77	
Watertown, . . .	—	387 22	387 22	
Wayland, . . .	—	464 58	464 58	
Westford, . . .	—	613 10	613 10	
Weston, . . .	—	776 33	776 33	
<i>Am'ts carried for'd, .</i>	—	\$32,737 78	\$32,737 78	\$79,114 95

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapter 157, 1907.	Chapters 212 and 657, 1908.		
<i>Am'ts brought for'd, .</i>	—	\$32,737 78	\$32,737 78	\$79,114 95
Wilmington, . . .	—	17 58	17 58	
Winchester, . . .	—	479 50	479 50	
Woburn, . . .	—	213 01	213 01	
<i>Nantucket County.</i>	—	\$33,447 87	\$33,447 87	33,447 87
Nantucket, . . .	—	\$392 93	\$392 93	392 93
<i>Norfolk County.</i>				
Bellingham, . . .	—	\$161 68	\$161 68	
Braintree, . . .	—	179 46	179 46	
Canton, . . .	—	291 14	291 14	
Cohasset, . . .	—	329 96	329 96	
Dover, . . .	—	192 32	192 32	
Foxborough, . . .	—	194 43	194 43	
Franklin, . . .	—	61 05	61 05	
Holbrook, . . .	—	119 44	119 44	
Milton, . . .	—	223 28	223 28	
Needham, . . .	—	27 29	27 29	
Norfolk, . . .	—	215 82	215 82	
Norwood, . . .	\$28 00	788 62	816 62	
Plainville, . . .	—	389 22	389 22	
Quincy, . . .	—	188 25	188 25	
Randolph, . . .	—	68 64	68 64	
Stoughton, . . .	—	395 20	395 20	
Walpole, . . .	28 00	2,055 20	2,083 20	
Wellesley, . . .	—	110 49	110 49	
Westwood, . . .	—	116 20	116 20	
Weymouth, . . .	—	695 46	695 46	
Wrentham, . . .	—	495 49	495 49	
	\$56 00	\$7,298 64	\$7,354 64	7,354 64
<i>Plymouth County.</i>				
Abington, . . .	—	\$256 52	\$256 52	
Bridgewater, . . .	—	177 72	177 72	
Brockton, . . .	—	455 23	455 23	
Duxbury, . . .	—	441 89	441 89	
Hanover, . . .	—	43 10	43 10	
Hingham, . . .	—	291 74	291 74	
Kingston, . . .	—	126 00	126 00	
Lakeville, . . .	—	246 25	246 25	
Marion, . . .	—	562 35	562 35	
Marshfield, . . .	—	427 00	427 00	
Mattapoisett, . . .	—	412 34	412 34	
<i>Am'ts carried for'd, .</i>	—	\$3,440 14	\$3,440 14	\$120,310 39

REPAIR AND MAINTENANCE EXPENDITURES — *Continued.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapter 157, 1907.	Chapters 212 and 657, 1908.		
<i>Am'ts brought for'd, .</i>	—	\$3,440 14	\$3,440 14	\$120,310 39
Middleborough, . . .	—	646 43	646 43	
Pembroke, . . .	—	146 08	146 08	
Plymouth, . . .	—	604 18	604 18	
Rochester, . . .	—	220 72	220 72	
Rockland, . . .	—	238 49	238 49	
Scituate, . . .	—	366 74	366 74	
Wareham, . . .	—	783 94	783 94	
West Bridgewater, . .	\$21 65	435 11	456 76	
Whitman, . . .	—	307 10	307 10	
	\$21 65	\$7,188 93	\$7,210 58	7,210 58
<i>Suffolk County.</i>				
Chelsea, . . .	—	\$108 89	\$108 89	
Revere (east), . . .	—	301 91	301 91	
Revere (west), . . .	—	786 66	786 66	
	—	\$1,197 46	\$1,197 46	1,197 46
<i>Worcester County.</i>				
Athol, . . .	—	\$189 31	\$189 31	
Auburn, . . .	—	416 84	416 84	
Barre, . . .	—	227 32	227 32	
Blackstone, . . .	—	341 88	341 88	
Brookfield, . . .	—	529 52	529 52	
Charlton, . . .	—	296 81	296 81	
Douglas, . . .	—	268 16	268 16	
Dudley, . . .	—	497 99	497 99	
Fitchburg, . . .	—	401 08	401 08	
Gardner, . . .	\$71 82	391 86	463 68	
Grafton, . . .	—	297 37	297 37	
Hardwick, . . .	—	263 75	263 75	
Harvard, . . .	—	123 95	123 95	
Holden, . . .	—	494 10	494 10	
Lancaster, . . .	—	104 62	104 62	
Leicester, . . .	—	684 13	684 13	
Leominster, . . .	—	75 61	75 61	
Lunenburg, . . .	—	362 72	362 72	
Milford, . . .	—	63 59	63 59	
Millbury, . . .	—	196 53	196 53	
New Braintree, . . .	—	34 06	34 06	
North Brookfield, . .	—	100 50	100 50	
Northborough, . . .	—	332 20	332 20	
Oxford, . . .	—	1 43	1 43	
Paxton, . . .	—	369 46	369 46	
Phillipston, . . .	—	111 43	111 43	
<i>Am'ts carried for'd, .</i>	\$71 82	\$7,176 22	\$7,248 04	\$128 718 43

REPAIR AND MAINTENANCE EXPENDITURES — *Concluded.*

TOWN OR CITY.	PAID FROM REVENUE.		Amount.	Totals.
	Chapter 157, 1907.	Chapters 212 and 657, 1908.		
<i>Am'ts brought for'd, .</i>	\$71 82	\$7,176 22	\$7,248 04	\$128,718 42
Princeton, . . .	—	79 34	79 34	
Rutland, . . .	—	92 40	92 40	
Shrewsbury, . . .	—	4,963 20	4,963 20	
Southborough, . . .	—	89 98	89 98	
Southbridge, . . .	—	826 74	826 74	
Spencer, . . .	6 00	324 31	330 31	
Sterling, . . .	—	318 22	318 22	
Sturbridge, . . .	—	94 93	94 93	
Sutton, . . .	—	258 74	258 74	
Templeton, . . .	31 28	394 24	425 52	
Uxbridge, . . .	—	195 67	195 67	
Warren, . . .	—	563 56	563 56	
Westborough, . . .	—	244 70	244 70	
West Boylston, . . .	—	119 45	119 45	
West Brookfield, . . .	12 70	418 63	431 33	
Westminster, . . .	—	1,409 49	1,409 49	
Winchendon, . . .	—	30 72	30 72	
Worcester, . . .	—	596 60	596 60	
	\$121 80	\$18,197 14	\$18,318 94	18,318 94
				\$147,037 37

Expense of analysis of tar and oil samples, etc., . . . \$245 55

EXPENDITURES FOR REPAIRS OF STATE HIGHWAYS.

[Under Chapter 642, Acts of 1908.]

Motor Vehicle Fees Fund.

Andover,	\$7 49
Ashfield,	220 59
Auburn,	2,640 13
Beverly,	2,855 03
Brockton,	3,963 30
Easton,	2,134 08
Fitchburg,	2,278 02
Grafton,	2,530 03
Great Barrington,	17 90
Hingham,	2,278 63
Huntington,	1,049 32
Lawrence,	111 64
Lee,	12 48
Lenox,	23 17
Lexington,	4,657 82
Lincoln,	1,552 61
Lunenburg,	3,716 77
North Adams,	18 00
North Attleborough,	10,003 18
North Reading,	7 49
Orange,	16 12
Pittsfield,	18 00
Plainville,	3,148 67
Quincy,	1,306 91
Randolph,	1,473 75
Reading,	758 25
Revere,	513 74
Russell,	858 53
Saugus,	1,143 50
Seekonk,	340 27
Shrewsbury,	11,761 31
Somerset,	7,433 03
Stoneham,	728 81

Amount carried forward, \$69,578 57

<i>Amount brought forward,</i>	\$22,727 84
Heath,	412 00
Holland,	164 00
Lanesborough,	500 00
Leverett (two contracts),	1,288 00
Leyden (two contracts),	884 00
Marblehead,	3,200 00
Middlefield,	122 40
Millis (two contracts),	1,008 00
Monroe,	370 00
Monterey,	356 00
New Ashford,	116 00
New Marlborough,	101 32
Oakham (two contracts),	1,030 00
Otis,	600 00
Pelham (two contracts),	100 00
Pepperell,	550 00
Plainfield,	740 00
Prescott,	400 00
Provincetown,	1,238 00
Reading,	1,132 00
Rowe,	470 00
Sandisfield,	900 00
Savoy,	560 00
Sherborn,	400 00
Shutesbury,	600 00
Southbridge,	6,400 00
Swampscott,	2,925 00
Tolland,	500 00
Topsfield (two contracts),	1,000 00
Tyringham,	400 00
Wakefield,	1,543 75
Washington,	550 00
Wendell,	552 00
Westhampton,	480 00
West Stockbridge (two contracts),	1,644 00
Worthington,	780 00

 \$56,744 31

GENERAL EXPENSES, DEC. 1, 1907, TO NOV. 30, 1908.

[Under Chapter 157, Acts of 1907.]

Travel of commissioners,	\$129 09
Printing, including postal cards and envelopes,	237 22
Advertising hearings,	3 30
Office and typewriter supplies,	27 18
Telephone, including tolls,	24 75
Postage,	12 09
Repairs to steam road rollers,	22 18
Miscellaneous items, including express charges, car fares, telegrams and other minor office expenses,	22 32
	<hr/>
	\$478 13

[Under Chapter 212, Acts of 1908.]

Salaries of commissioners,	\$8,500 00
Travel of commissioners,	2,888 85
Salaries of clerical assistants and first and second engineers,	15,311 66
Rent of offices,	4,750 00
Printing and binding annual report,	1,072 17
Printing, including postal cards and envelopes,	1,445 82
Office and typewriter supplies,	377 93
Telephone, including tolls,	400 07
Postage,	240 09
Recording land takings and easements,	158 63
Advertising hearings,	85 44
Paint analyses,	107 00
Court fees,	99 10
Typewriter and camera,	196 38
Repairs to steam road rollers,	2,024 18
Miscellaneous items, including express charges, car fares, telegrams and other minor office expenses,	482 81
	<hr/>
	\$38,140 13

MOTOR VEHICLE FEES FUND.

[Under Chapter 580, Acts of 1907, and Chapter 642, Acts of 1908.]

Salaries of clerks and clerical assistants,	\$13,959 39
Number plates for registering automobiles,	7,587 51
Badges for professional chauffeurs,	596 45
	<hr/>
<i>Amount carried forward,</i>	\$22,143 35

<i>Amount brought forward,</i>	\$22,143 35
Office and typewriter supplies,	235 12
Printing, including postal cards and envelopes,	4,269 10
Speed signs and sign boards,	610 58
Rent of offices,	2,040 20
Advertising,	23 32
Cartage and storage of number plates,	138 38
Examination of professional chauffeurs, including salaries, expenses and mileage purchased,	5,933 96
Miscellaneous items, including express charges, telegrams, car fares, due stamps and other minor office expenses,	86 00
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	\$35,480 01

EXPENSES CONNECTED WITH TELEPHONE AND TELEGRAPH

SUPERVISION.

Salaries of commissioners,	\$4,500 00
Salaries of clerical assistants,	1,576 15
Printing,	908 58
Expert accounting and examination of books of telephone companies,	1,786 13
Advertising,	8 28
Miscellaneous items,	4 84
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	\$8,783 98

[Under Section 1, Chapter 632, Acts of 1908.]

Expenses in connection with an inventory and appraisal of the property of the New England Telephone and Telegraph Company,	\$14,470 14
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Expenditures under chapter 574, Acts of 1907, providing for the laying out and construction as a State highway of Washington Street in the West Roxbury district of the city of Boston,	\$92,929 77
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Expenditures under chapter 616, Acts of 1908, providing for certain State highways in the county of Berkshire, town of Becket,	\$1,661 80
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SUMMARY OF EXPENDITURES.

For construction,	\$471,790 10
For road repair and maintenance, including tar analysis, etc.,	147,282 92
For road repair and maintenance (motor vehicle fees fund),	82,628 09
For construction, under "small town" acts,	56,744 31
For general expenses, under chapter 157, Acts of 1907,	478 13
For general expenses, under chapter 212, Acts of 1908,	38,140 13
For expenditures connected with automobile registration,	35,480 01
For telephone and telegraph supervision, under chapter 21, Acts of 1908,	8,783 98
For expenditures under chapter 632, Acts of 1908,	14,470 14
For expenditures under chapter 574, Acts of 1907,	92,929 77
For expenditures under chapter 616, Acts of 1908,	1,661 80
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	\$950,389 38

HAROLD PARKER,
JOHN H. MANNING,
WM. D. SOHIER,

Massachusetts Highway Commission.

APPENDIX A.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, TO DEC. 1, 1908.

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Abington,	1900-1-3,	Brockton line,	Easterly,	1.73	1.73
Abington,	1905-7,	Holbrook line,	Easterly,	1.64	1.64
Acton, ¹	1899-1900-1-2,	Concord line to Littleton line,	Northwesterly,	3.71	3.71
Acton (west), ²	1901-7,	Boxborough line,	Southwesterly,	1.67	1.67
Acushnet,	1901-3,	Rochester line via Long Plain to Rochester line,	Westerly and northerly,	2.80	2.80
Acushnet,	1897,	1,500 feet from New Bedford line,	Northerly, . . . . .	.61	.61
Adams (Maple Grove),	1897,	Cheshire line,	Northerly, . . . . .	.57	.57
Adams (Orchard Street),	1908,	Cheshire line,	Northerly,	1.46	1.30
Agawam,	1903-4-6-7,	South End bridge at Connecticut River,	Southerly,	2.22	2.22
Amesbury,	1899-1901-3-4,	Merrimac line,	Easterly,	2.24	2.24
Amesbury,	1906-7,	Salisbury line,	Westerly, . . . . .	.77	.77
Amherst,	1901-4,	Hadley line,	Northeasterly, . . . . .	.97	.97
Andover,	1895-6,	Lawrence line,	Southerly,	1.22	1.22
Andover,	1897-9-1900-2-3,	North Reading line,	Northerly,	2.98	2.98

Ashby,	1894-5-6-7-8-9,	Fitchburg line to Ashby post-office,	Northerly,	3.58	3.58
Ashfield,	1897-8,	One mile north of Ashfield post-office,	Northerly,	1.61	1.61
Ashland,	1903,	Southborough line,	Easterly,	1.47	1.47
Athol,	1895-6,	Orange line,	Easterly,	1.61	1.61
Athol,	1902-3,	Phillipston line,	Northwesterly,	1.49	1.49
Attleborough,	1900-1-3,	North Attleborough line,	Southwesterly,	2.66	2.66
Auburn,	1895-6-7-8-9-1901-3-4,	Worcester line to Oxford line,	Southwesterly,	5.26	5.26
Barnstable,	1899-1902-7,	Sandwich line,	Southeasterly,	2.68	2.68
Barnstable (south),	1897-1901,	Yarmouth line,	Westerly,	2.26	2.26
Barnstable (west),	1905,	Marston Mills,	Southerly,	1.48	1.48
Barre,	1897-9, 1900-2,	Ware River bridge to Barre Common,	Northwesterly,	2.89	2.89
Becket,	1902-4-5-6,	Chester line,	Westerly,	2.03	2.03
Becket,	1908,	Westerly end of 1906 section,	Westerly,	3.53	-
Bedford,	1897-1902,	Lexington line,	Northwesterly,	1.07	1.07
Bedford,	1903-6,	Carlisle bridge,	Southeasterly, . . . . .	.57	.57
Belchertown,	1900-1-2-7,	Near depot,	Westerly,	1.92	1.92
Belchertown,	1908,	Easterly end of 1900 section,	Easterly, . . . . .	.43	.43
Bellingham,	1902-5,	900 feet from Blackstone line,	Northeasterly, . . . . .	.55	.55
Bellingham,	1904-5-6,	Franklin line to Mendon line,	Westerly,	2.63	2.63
Berkley,	1906,	Lakeville line,	Northwesterly, . . . . .	.77	.77
Beverly,	1895-7-8,	Wenham line,	Southerly,	2.01	2.01
Beverly,	1905-6,	Manchester line,	Southwesterly,	3.67	3.67

¹ Exclusive of 1,100 feet at railroad crossing.² Exclusive of 970 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length con- structed (Miles).
		From —	Direction.	Length (Miles).	
Billerica, .	1908, .	A point near the Common, .	Southeasterly, .	.58	.30
Blackstone, .	1899-1900-2, .	Uxbridge line, .	Southeasterly, .	1.74	1.74
Blackstone, .	1905, .	Bellingham line to Woonsocket line, .	Southwesterly, .	.06	.06
Boston, .	1908, .	Lagrange Street to Dedham line, .	Southwesterly, .	1.40	.90
Bourne, .	1897-8-1904, .	Cohasset Narrows, .	Easterly, .	2.09	2.09
Bourne, ¹ .	1903-5-7, .	Back River bridge, .	Southerly, .	2.42	2.42
Boxborough, .	1897-9-1905-7, .	Acton line, .	Westerly, .	3.31	3.31
Braintree, .	1900-2, .	Quincy line, .	Southeasterly, .	1.06	1.06
Brewster, .	1895-6-7-1901, .	Dennis line to Orleans line, .	Easterly, .	7.79	7.79
Brewster, .	1908, .	Orleans line to Chatham line, .	Southerly, .	.04	.02
Bridgewater, .	1904-5-6-7, .	Near Middleborough line, .	Northerly and northwesterly, .	3.39	3.39
Bridgewater, .	1908, .	Northerly end of 1907 section, .	Northerly, .	.08	.08
Brimfield, .	1897-9, .	Monson line, .	Southerly, .	2.34	2.34
Brimfield, .	1901-2, .	Wales line, .	Northerly, .	1.63	1.63
Brockton, .	1897-8-9, .	Easton line, .	Easterly, .	1.87	1.87
Brockton, .	1900, .	Abington line, .	Westerly, .	.66	.66
Brockton, .	1904, .	West Bridgewater line, .	Northerly, .	.66	.66
Brookfield, .	1902-3, .	West Brookfield line, .	Easterly, .	.87	.87
Brookfield, .	1905-7, .	Spencer line, .	Southwesterly, .	.77	.77

Brookfield,	.	1897-8-1900-4, .	Brookfield village, .	.	Easterly,	2.24
Buckland,	.	1894-5-6-7-8-9-1900-3-7, .	Shelburne Falls station, .	.	Westerly and southerly, .	4.28
Burlington,	.	1903-4-5-6, .	Woburn line to Billerica line, .	.	Northwesterly, .	3.80
Canton, .	.	1905-6-7, .	Stoughton line, .	.	Northerly, .	2.22
Canton, .	.	1908, .	Northerly end of 1907 section, .	.	Northerly, .	1.01
Charlemonit,	.	1897-8-9, .	Deerfield River bridge, .	.	Easterly, .	.77
Charlton, .	.	1901-2, .	Charlton depot to Charlton City, .	.	Southerly, .	1.91
Charlton, .	.	1905-6, .	Near Charlton City, .	.	Easterly, .	.84
Charlton, .	.	1907, .	Oxford line, .	.	Southwesterly, .	.46
Chatham, .	.	1899-1901-2-5-6, .	Depot Street, .	.	Westerly, .	4.03
Chatham, .	.	1907, .	Depot St. to Wading Place bridge, Harwich line, .	.	Northwesterly, .	3.13
Chelmsford, ²	.	1898-9-1901-7, .	Lowell line to North Chelmsford, .	.	Westerly and northerly, .	1.97
Chelmsford,	.	1903-4, .	Lowell line toward Chelmsford Center, .	.	Southwesterly, .	1.27
Chelmsford,	.	1908, .	Near Chelmsford village, .	.	Southwesterly, .	.98
Chelsea, .	.	1901-4, .	Lewis Street, .	.	Southwesterly, .	.96
Cheshire, .	.	1899-1900-1-2, .	Farnum's station, Boston & Albany railroad, .	.	Northeasterly, .	2.60
Chester, .	.	1899-1900-1-2-4-5, .	Becket line, .	.	Easterly, .	3.25
Chicopee, .	.	1897-8-9, .	Springfield line, .	.	Northerly, .	.92
Chicopee, .	.	1902-3-4-5-6-7, .	Near Chicopee River bridge, .	.	Northerly, .	2.98
Chilmark, .	.	1905-6, .	Beetlebung Corner, .	.	Southwesterly and northeasterly, .	2.80
Chilmark, .	.	1908, .	Easterly end of 1906 section, .	.	Easterly, .	.81
Clarksburg,	.	1905-7, .	North Adams line, .	.	Northeasterly and northerly, .	.97

¹ Exclusive of 275 feet at railroad.² Exclusive of 900 feet at railroad crossing.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — Continued.

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Cohasset,	1897-9-1900,	Near Hingham line,	Easterly,	1.73	1.73
Cohasset,	1902-3,	Beechwood Street to Scituate line,	Southerly, . . . . .	.55	.55
Colrain, ¹	1898-1901-5,	Shelburne line,	Northerly,	2.13	2.13
Concord,	1897-8,	Lincoln line,	Northwesterly,	1.47	1.47
Concord,	1900-5-6,	Acton line,	Southeasterly,	2.13	2.13
Dalton,	1895-6-1903-4,	Pittsfield line,	Easterly,	2.55	2.55
Dartmouth,	1898-9-1900-1-3-5,	Near Westport line to New Bedford line,	Easterly,	4.53	4.53
Deerfield,	1894-5,	South Deerfield station to Sunderland bridge,	Southeasterly,	1.53	1.53
Deerfield,	1900-1-2-3,	Cheapside bridge,	Southerly,	1.43	1.43
Deerfield,	1904-5-6-7,	South Deerfield village,	Northerly,	1.74	1.74
Deerfield,	1908,	Northerly end of 1907 section,	Northerly, . . . . .	.74	.74
Dennis (north),	1895-6-7-8,	Yarmouth line to Brewster line,	Northeasterly,	4.27	4.27
Dennis (south),	1900-1-2-4-6,	Basco River bridge to Harwich line,	Easterly,	3.22	3.22
Dighton (north),	1902-3,	Taunton line to Rehoboth line,	Southwesterly,	1.56	1.56
Dighton (south),	1905-6,	Three Mile River bridge,	Southwesterly, . . . . .	.54	.54
Dighton,	1908,	Southerly end of the 1906 section,	Southwesterly, . . . . .	.68	.68
Douglas,	1902-4,	Sutton line at Manchaug,	Southeasterly,	1.60	1.60
Douglas,	1905,	Main Street,	Southeasterly, . . . . .	.54	.54
Dover,	1905-7,	Charles River bridge,	Westerly,	2.18	2.18

Draut,	1905-6-7,	Near Lowell line on Methuen road,	Northeasterly,	1.83	1.83
Dudley,	1902-4-6-7,	1,400 feet from Webster line,	Westerly and southwesterly,	2.29	2.29
Duxbury,	1894-5-7-9-1903-5,	Marshfield line,	Southerly,	3.86	3.86
Duxbury,	1908,	Southerly end of 1905 section,	Southwesterly, . . . . .	.61	.61
Eastham,	1903,	Wellfleet line,	Southerly, . . . . .	.78	.78
Eastham,	1904-5-6,	Orleans line,	Northerly,	2.60	2.60
Easthampton,	1895-6,	Northampton line,	Southwesterly,	1.28	1.28
Easthampton,	1900-1,	Clark Street to foot of Mount Tom,	Southerly,	1.10	1.10
East Longmeadow,	1904-6,	East Longmeadow village,	Northwesterly,	1.05	1.05
Easton,	1900,	Brockton line,	Southwesterly, . . . . .	.80	.80
Edgartown,	1897-9-1900-1-2-3,	Oak Bluffs line,	Southerly,	2.42	2.42
Erving,	1898-9-1900,	Town hall to Orange line,	Easterly,	2.04	2.04
Erving,	1907,	Millers Falls,	Easterly, . . . . .	.67	.67
Essex,	1902-3,	Essex River,	Easterly and westerly, . . . . .	.35	.35
Fairhaven,	1894-5,	Martapoisett line,	Westerly,	1.45	1.45
Falmouth,	1904,	Bourne line to Woods Hole,	Southerly,	11.64	11.64
Falmouth,	1905-6-7,	East Falmouth village,	Southwesterly and easterly,	1.38	1.38
Falmouth,	1908,	Easterly end of 1907 section,	Easterly, . . . . .	.40	.40
Fitchburg,	1894-5,	Westminster line,	Easterly, . . . . .	.97	.97
Fitchburg,	1897,	Lunenburg line,	Westerly, . . . . .	.61	.61
Fitchburg,	1900-1-3-4,	Ashby line,	Southerly,	2.56	2.56
Foxborough,	1901-2,	Mansfield line,	Northerly,	1.82	1.82

¹ Exclusive of 336 feet at North River bridge.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length con- structed (Miles).
		From —	Direction.	Length (Miles).	
Foxborough,	1905,	Wrentham line,	Easterly,	1.02	1.02
Foxborough,	1908,	Easterly end of 1905 section,	Southeasterly,	.68	—
Framingham,	1904-5,	Southborough line via Pleasant Street,	Southeasterly,	2.43	2.43
Franklin, ¹	1905-7,	Bellingham line,	Easterly,	1.38	1.38
Freetown,	1902-3,	New Bedford line to Lakeville line,	Northerly,	3.19	3.19
Freetown, ²	1908,	Fall River line,	Northeasterly,	.68	.68
Gardner,	1897-8,	Templeton line,	Easterly,	2.37	2.37
Gardner,	1900-1,	Westminster line,	Northwesterly,	.98	.98
Gloucester,	1894-5-8-1905-6-7,	Manchester line to "cut" bridge,	Northeasterly and northerly,	2.46	2.46
Gloucester,	1907,	Rockport line,	Southerly,	.52	.52
Goshen,	1894-5,	Williamsburg line,	Northwesterly,	1.91	1.91
Goshen,	1908,	Northerly end of 1895 section,	Northerly,	.55	.55
Grafton,	1897-9-1900-5,	Millbury line,	Southeasterly and southerly,	2.05	2.05
Granby,	1894-1902-5-6,	South Hadley line,	Easterly,	1.97	1.97
Granby,	1908,	Easterly end of 1906 section,	Easterly,	.29	.29
Great Barrington,	1894-6-7-1902,	Housatonic River bridge,	Easterly,	3.41	3.41
Greenfield, ³	1899-1900-2,	Washington Street,	Easterly,	1.33	1.33
Greenfield,	1903-6-7,	Silver Street,	Northeasterly,	1.41	1.41
Greenfield,	1908,	Northerly end of 1907 section,	Northeasterly,	.51	.51
Greenfield,	1905,	One mile from town section on Colrain road,	Northerly,	.26	.26

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).	Length completed (Miles).
		From —	Direction.			
Holden,	1905,	Rutland line,	Easterly, . . . . .		.52	.52
Holliston,	1906-7,	Milford line,	Northeasterly,		1.46	1.46
Hudson,	1906-7,	Bright Street via Washington Street to Marlborough line.	Southerly,		1.14	1.14
Huntington,	1895-6,	Russell line,	Westerly,		1.01	1.01
Huntington,	1903-6,	Near railroad crossing,	Northwesterly, . . . . .		.99	.99
Ipswich,	1907,	Ipswich Common,	Southerly, . . . . .		.85	.85
Ipswich,	1908,	Southerly end of 1907 section,	Southerly, . . . . .		.49	.49
Kingston,	1905-6,	Duxbury line,	Southerly,		1.02	1.02
Lakeville,	1901-2,	One-half mile from Middleborough line,	Southwesterly,		3.57	3.57
Lancaster,	1902,	Clinton line to Sterling line,	Northerly,		1.25	1.25
Lawrence,	1896,	Methuen line,	Southerly, . . . . .		.27	.27
Lee,	1894-5-6,	Lee Park to Strickland House,	Easterly,		1.99	1.99
Lee,	1908,	Easterly end of 1896 section,	Easterly, . . . . .		.46	.46
Lee,	1900,	Lenox line to Lee village,	Southerly,		1.26	1.26
Lee,	1906,	Lenox line, Stockbridge Street,	Southerly,		1.02	1.02
Lee (south),	1906,	Stockbridge line, Main Street,	Easterly, . . . . .		.90	.90
Leicester,	1894-5-6-8-9,	Worcester line to Spencer line,	Westerly,		4.87	4.87
Lenox,	1899-1900-1,	Lee line to Lenox village,	Northerly,		2.28	2.28
Lenox,	1904-5,	Lenox village to Pittsfield line,	Northerly,		3.18	3.18

Lenox,	1906,	Lee line via Kemble Street,	Northerly,	2.20	2.20
Leominster,	1901-2,	Sterling line,	Northerly,	2.18	2.18
Lexington,	1895-6-7-8,	Massachusetts Avenue,	Westerly,	3.45	3.45
Lexington,	1900,	Bedford line,	Southeasterly, . . . . .	.85	.85
Lincoln,	1895-6-7,	Concord line to Lexington line,	Southeasterly,	2.06	2.06
Littleton,	1902-3-4,	Acton line via Great Road,	Northerly,	2.11	2.11
Littleton,	1908,	Northerly end of 1901 section,	Northerly, . . . . .	.52	.52
Littleton,	1902,	Westford line to Great Road,	Southwesterly, . . . . .	.32	.32
Lowell (Boulevard),	1897,	Tyngsborough line,	Easterly, . . . . .	.97	.97
Lowell (Princeton Street),	1897-8,	Chelmsford line,	Easterly,	1.34	1.34
Lowell (east),	1900,	Tewksbury line,	Westerly, . . . . .	.35	.35
Lunenburg,	1898-9-1900-1-3,	Fitchburg line,	Easterly,	2.72	2.72
Lynn,	1899,	Saugus River to Sea Street,	Northeasterly, . . . . .	.90	.90
Mansfield,	1901,	Foxborough line,	Southeasterly, . . . . .	.72	.72
Mansfield,	1906,	Norton line,	Northerly, . . . . .	.49	.49
Marion,	1894-5-1901,	Marion village to Wareham line,	Northeasterly,	1.59	1.59
Marion,	1897-9-1901-2,	Marion village to Mattapoisett line,	Westerly,	1.84	1.84
Marion,	1903,	Marion village to Rochester line,	Northwesterly,	2.14	2.14
Marlborough (east),	1897-1902-3-4,	Sudbury line to Hosmer Street,	Westerly,	3.10	3.10
Marlborough (west),	1897-9-1900-1,	Northborough line,	Easterly,	2.41	2.41
Marlborough, ²	1908,	Hudson line,	Southerly, . . . . .	.81	.60
Marshfield,	1894-6-8-9-1901-2-4-7,	Duxbury line,	Northerly,	4.60	4.60

¹ Exclusive of portion through Leicester Center.² Grading only.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	Road laid out.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Mattapoisett,	1894-5,	Fairhaven line,	Easterly,	1.16	1.16
Mattapoisett,	1900-1-3,	Marion line to Ned Point Light Road,	Westerly,	2.05	2.05
Medford,	1907,	Sonerville line via Mystic Avenue,	Northerly, . . . . .	.86	.86
Melrose,	1906,	Saugus line at Upham Street,	Westerly, . . . . .	.39	.39
Merrimac,	1897-8-9,	Near Haverhill line,	Northeasterly, . . . . .	.92	.92
Merrimac,	1901-3,	Amesbury line,	Southwesterly,	1.20	1.20
Methuen,	1896-1900-1-2,	Lawrence line,	Northeasterly,	2.63	2.63
Methuen,	1906-1907,	Haverhill line at Hawkes Brook,	Southerly, . . . . .	.36	.36
Methuen,	1908,	Connecting the 1902 and 1907 sections,	Southerly, . . . . .	.77	.65
Middleborough,	1894-5-6-7-8-1902-3,	Nemasket River to Rochester line,	Southeasterly,	8.98	8.98
Middleborough,	1906,	Bridgewater line at Taunton River,	Southerly, . . . . .	.72	.72
Middleborough,	1906-7,	Railroad bridge on Everett Street,	Northerly,	1.88	1.88
Middleborough,	1908,	Connecting 1906 and 1907 sections,	Northeasterly, . . . . .	.86	.86
Milford,	1904-5,	Highland Avenue via West Street to Hopdale line,	Northeasterly,	1.75	1.75
Millbury,	1902,	Worcester line to Grafton line,	Southeasterly, . . . . .	.78	.78
Millbury,	1900-3-4,	Worcester line,	Southerly,	1.61	1.61
Millbury,	1906,	Sutton line,	Northeasterly, . . . . .	.59	.59
Milton,	1899-1900,	Neponset River at Granite bridge,	Southeasterly, . . . . .	.87	.87
Monson,	1894,	Railroad bridge,	Northerly, . . . . .	.93	.93

Monson,	1901-5,	Palmer line to Brimfield line	Southeasterly, . . . . .	.39	.39
Monson,	1908,	Palmer line to Palmer line,	Southeasterly, . . . . .	.29	.29
Montague,	1898-9-1904-6,	Third Street near L Street, Turner's Falls,	Easterly,	3.23	3.23
Montague,	1905,	Connecticut River bridge to Greenfield,	Northeasterly,	1.07	1.07
Nantucket,	1894-5-6-7-9-1900-1-3,	First mile stone to Siasconset,	Easterly,	6.48	6.48
Natick,	1901,	Wellesley line to Union Square,	Westerly,	1.14	1.14
Natick,	1903,	Sherborn line to Cemetery Street,	Easterly,	2.06	2.06
Needham,	1901,	Newton line,	Westerly,	1.00	1.00
Needham,	1905,	Charles River bridge, Chestnut Street,	Northerly,	1.04	1.04
New Braintree,	1897,	Hardwick line to Ware line,	Southerly, . . . . .	.17	.17
New Braintree,	1903,	New Braintree village,	Northerly, . . . . .	.22	.22
Newbury,	1899-1900-1-2-4-5-6,	Newburyport line via Oldtown to Rowley line,	Southerly and southwesterly,	4.23	4.23
Newburyport,	1896-7-8,	West Newbury line,	Easterly,	1.75	1.75
Newton,	1901,	Needham line,	Easterly,	1.03	1.03
Norfolk,	1895,	Norfolk line to Wrentham line,	Southwesterly,	1.45	1.45
North Adams,	1894-6-7,	Williamstown line,	Easterly,	1.69	1.69
North Adams,	1900-1-2-3,	Boston & Maine railroad bridge to Adams line,	Southerly,	2.32	2.32
North Andover,	1900-2-4,	Lawrence line,	Southeasterly,	1.90	1.90
North Andover,	1907,	Junction of Pleasant, Park and Court streets,	Southwesterly, . . . . .	.24	.24
North Andover,	1907,	Junction of Sutton and Clark streets to junction of Osgood and Park streets,	Southwesterly, . . . . .	.22	.22
Northampton,	1894,	Hadley bridge,	Southwesterly, . . . . .	.56	.56
Northampton,	1897-8-9-1900-5,	Easthampton line,	Northerly,	1.47	1.47

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Northampton, . . .	1905-6, . . .	Reservoir Road, . . .	Northerly, . . .	1.90	1.90
North Attleborough, . . .	1894-5-6-7-9, . . .	Bruce Avenue to Attleborough line, . . .	Southwesterly, . . .	3.60	3.60
Northborough (east), . . .	1897-8, . . .	Marlborough line, . . .	Southwesterly, . . .	1.33	1.33
Northborough (west), . . .	1900-2-4, . . .	Shrewsbury line, . . .	Easterly, . . .	2.19	2.19
Northborough (south), . . .	1897, . . .	Westborough line, . . .	Northwesterly, . . .	.42	.42
North Brookfield, . . .	1905-6-7, . . .	Junction of Ward and Gilbert streets, . . .	Southerly, . . .	1.36	1.36
North Brookfield, . . .	1908, . . .	Southerly end of 1906 section, . . .	Southerly, . . .	.46	.46
Northfield, . . .	1901-2, . . .	Near Mill Brook, . . .	Southerly, . . .	1.16	1.16
North Reading, ¹ . . .	1897-8-1901-3, . . .	Andover line to Reading line, . . .	Southerly, . . .	2.31	2.31
Norton, . . .	1903, . . .	Village to near railroad station, . . .	Easterly, . . .	.72	.72
Norton, . . .	1906, . . .	Mansfield line, . . .	Southerly, . . .	.50	.50
Norton, . . .	1908, . . .	Attleborough line near Chartley village, . . .	Easterly, . . .	.66	.10
Norwood, . . .	1897-9, . . .	Walpole line, . . .	Northerly, . . .	1.03	1.03
Norwood, . . .	1895-6, . . .	Westwood line, . . .	Southerly, . . .	1.02	1.02
Oak Bluffs, . . .	1894-5-6, . . .	Sengekontacket bridge, . . .	Northerly, . . .	2.37	2.37
Orange, . . .	1894-5-7, . . .	Athol line, . . .	Westerly, . . .	2.18	2.18
Orange, . . .	1900-1-3-4-5, . . .	Erving line, . . .	Easterly, . . .	2.61	2.61
Orleans, . . .	1900-1-4, . . .	Brewster line to Eastham line, . . .	Northeasterly, . . .	1.98	1.98
Orleans, . . .	1903-4-5, . . .	1½ miles from Shattuck's Corner, . . .	Southeasterly and southerly, . . .	2.16	2.16

Orleans, ²	.	.	.	.	.	.	Brewster line,	Northerly,	.	.	.55	.25
Oxford,	.	.	.	.	.	.	Auburn line,	Southwesterly,	.	.	.85	.85
Oxford,	.	.	.	.	.	.	Charlton line,	Easterly,	.	.	.63	.10
Palmer,	.	.	.	.	.	.	Tennyville to Monson line,	Southeasterly,	.	.	2.52	2.52
Palmer,	.	.	.	.	.	.	Near Quabog River bridge,	Northeasterly,	.	.	1.73	1.73
Palmer,	.	.	.	.	.	.	Wilbraham road near Quabog River,	Westerly,	.	.	1.02	1.02
Palmer,	.	.	.	.	.	.	Warren line,	Southwesterly,	.	.	2.06	2.06
Palmer,	.	.	.	.	.	.	Connects 1901 and 1905 sections,	—	.	.	1.40	1.40
Palmer, ³	.	.	.	.	.	.	Wilbraham line to 1906 section,	Easterly,	.	.	.81	.81
Paxton,	.	.	.	.	.	.	Worcester line,	Northwesterly,	.	.	3.60	3.60
Pembroke,	.	.	.	.	.	.	North River bridge at Hanover line,	Southerly,	.	.	.35	.35
Pepperell,	.	.	.	.	.	.	At Nashua River bridge,	Northwesterly,	.	.	.05	—
Phillipston,	.	.	.	.	.	.	Athol line,	Easterly,	.	.	1.95	1.95
Pittsfield,	.	.	.	.	.	.	Hancock line,	Easterly,	.	.	2.38	2.38
Pittsfield,	.	.	.	.	.	.	Dalton line,	Southwesterly,	.	.	2.37	2.37
Pittsfield,	.	.	.	.	.	.	South Mountain Road to Lenox line,	Southerly,	.	.	1.58	1.58
Plainville,	.	.	.	.	.	.	North Attleborough line to Wrentham line,	Northerly,	.	.	1.81	1.81
Plymouth,	.	.	.	.	.	.	Manomet village,	Northerly,	.	.	5.05	5.05
Plymouth,	.	.	.	.	.	.	Manomet village,	Southerly,	.	.	.88	.88
Princeton,	.	.	.	.	.	.	Princeton depot,	Easterly,	.	.	2.23	2.23
Provincetown,	.	.	.	.	.	.	Truro line to Allerton Street,	Westerly,	.	.	1.10	1.10
Quincy,	.	.	.	.	.	.	Chubbuck Street to Fore River bridge,	Southeasterly,	.	.	.49	.49

¹ Exclusive of 1,200 feet at railroad.² Exclusive of 100 feet at bridge.³ Exclusive of 1,500 feet in Monson.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Quincy,	1902,	Braintree line,	Northerly, . . . . .	.57	.57
Quincy,	1904,	Randolph line to Milton line,	Northerly,	1.23	1.23
Randolph,	1902-3,	Quincy line,	Southeasterly,	1.38	1.38
Raynham,	1901-2-3,	Taunton line to Raynham village,	Northeasterly,	1.48	1.48
Reading,	1899-1900,	Stoneham line,	Northerly,	1.07	1.07
Reading,	1902-3,	North Reading line,	Southerly,	2.67	2.67
Rehoboth,	1895-6-9-1903-5-6-7,	Seekonk line,	Easterly,	4.90	4.90
Rehoboth,	1908,	Easterly end of 1907 section,	Easterly,	1.13	1.13
Revere,	1897-8,	Boston line,	Northeasterly, . . . . .	.58	.58
Revere,	1899,	Saugus line,	Southwesterly, . . . . .	.67	.67
Richmond,	1897-8-9-1901-2-3-4-5-6-7,	Boston & Albany railroad station to Pittsfield line.	Northerly,	4.01	4.01
Rochester,	1903,	Marion line to Acushnet line,	Westerly,	5.27	5.27
Rockland,	1902-5-6,	Abington line to Hanover line,	Easterly,	2.35	2.35
Rockport,	1902-6,	Gloucester line,	Northerly, . . . . .	.94	.94
Rowley,	1905-7,	Newbury line,	Southwesterly,	1.21	1.21
Rowley,	1908,	Burke's Corner,	Northeasterly, . . . . .	.74	-
Russell,	1894-5-6-7-8-9,	Westfield line to Huntington line,	Northeasterly,	6.66	6.66
Rutland,	1904,	Holden line,	Northwesterly,	1.16	1.16
Salem,	1901,	Swampscott line,	Northerly, . . . . .	.13	.13

Salisbury, .	1904-5,	. . . . .	Town Creek, .	. . . . .	Northerly and southerly,	1.45
Sandwich, .	1897-8-1900-2, .	. . . . .	Barnstable line,	. . . . .	Westerly,	2.83
Saugus, .	1898, .	. . . . .	Fox Hill bridge to Revere line,	. . . . .	Southerly,	1.60
Saugus, .	1906, .	. . . . .	Melrose line, .	. . . . .	Southeasterly,	.19
Scituate, .	1894-5-1900-3-6,	. . . . .	Cohasset line,	. . . . .	Southerly,	3.62
Scituate, .	1908, .	. . . . .	Southerly end of 1906 section, .	. . . . .	Southerly,	.55
Seekonk, .	1900-1-2-4, .	. . . . .	Rehoboth line to Rhode Island line, .	. . . . .	Westerly,	2.76
Sharon, .	1908, .	. . . . .	Foxborough line, .	. . . . .	Northeasterly,	.64
Shelburne, .	1894-5-6-7, .	. . . . .	Bridge Street to Colrain line, .	. . . . .	Northeasterly,	2.16
Shrewsbury, .	1895-6-7-8-9-1900-4, .	. . . . .	Worcester line to Northborough line,	. . . . .	Northeasterly,	4.86
Somerset, .	1895-6-7-9-1900-1-2, .	. . . . .	Slade's Ferry bridge, .	. . . . .	Northerly,	4.51
Somerset, .	1903-4-5, .	. . . . .	Slade's Ferry bridge to Swansea line,	. . . . .	Northwesterly,	2.20
Somerville, .	1908, .	. . . . .	Medford line via Mystic Avenue,	. . . . .	Southeasterly,	1.16
Southampton, .	1905, .	. . . . .	Easthampton line, .	. . . . .	Southwesterly,	.66
Southborough, .	1903-5, .	. . . . .	Westborough line, .	. . . . .	Easterly,	1.89
Southborough, .	1907, .	. . . . .	Ashland line, .	. . . . .	Westerly,	.65
Southbridge, .	1902, .	. . . . .	Charlton line,	. . . . .	Southwesterly,	.91
Southbridge, .	1907, .	. . . . .	Sturbridge line,	. . . . .	Easterly,	.45
South Hadley, .	1895-7-8-9-1900, .	. . . . .	Granby line to South Hadley Falls, .	. . . . .	Southwesterly,	2.42
South Hadley, .	1903-4, .	. . . . .	South Hadley to South Hadley Falls,	. . . . .	Southerly,	2.71
Spencer, .	1897-1900-1, .	. . . . .	Leicester line,	. . . . .	Westerly,	1.60
Spencer, ^{1, 2}	1906, .	. . . . .	Brookfield line,	. . . . .	Easterly,	.84

¹ Exclusive of 178 feet at Seven Mile River.

² Hassan pavement.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Sterling, .	1897-8, .	Near town hall, .	Southwesterly, .	1.29	1.29
Sterling, .	1905-7, .	Lancaster line, .	Westerly, .	1.23	1.23
Sterling, .	1906-7, .	Leominster line, .	Southerly, .	.55	.55
Stockbridge, .	1905, .	Lee line at South Lee, .	Easterly, .	.55	.55
Stockbridge, .	1906, .	Lee line at East Street, .	Southwesterly, .	2.22	2.22
Stoneham, .	1897-8, .	South Street, .	Northerly, .	.57	.57
Stoneham, .	1900-1, .	Reading line, .	Southerly, .	1.01	1.01
Stoughton, .	1902-3, .	Canton line to Lincoln Street, .	Southerly, .	1.16	1.16
Stoughton, ¹ .	1904-5, .	Easton line to Walnut Street, .	Northerly, .	2.14	2.14
Sturbridge, .	1897-1903-4-7, .	Southbridge line, .	Northwesterly, .	1.73	1.73
Sudbury, .	1897-8-1900-1-2-3, .	Marlborough line to Wayland line, .	Easterly, .	5.11	5.11
Sunderland, .	1897-1903-4-6-7, .	Connecticut River bridge, .	Southeasterly, .	1.39	1.39
Sutton, .	1899-1901-2, .	Millbury line, .	Southerly, .	1.46	1.46
Sutton, .	1903-4, .	Douglas line at Manchaug, .	Northerly, .	.82	.82
Swampscott, .	1897-1900-1, .	Salem line to Burrell Street, .	Southwesterly, .	1.49	1.49
Swansea, .	1903-6, .	Somerset line, .	Northwesterly, .	1.76	1.76
Swansea, .	1903-7, .	Myles River bridge, .	Southeasterly and northwesterly, .	1.94	1.94
Taunton, .	1895-6-8-9-1900-1, .	Dighton line on Winthrop Street, .	Easterly, .	2.94	2.94
Taunton, .	1905-6, .	Three Mile River bridge, .	Northeasterly, .	1.07	1.07

	1907,		Railroad tracks on County Street,	Southeasterly,	.66
Taunton, .	.	.	Gardner line at Otter River, .	Westerly, .	2.00
Templeton,	.	.	Junction of Main and Maple streets, .	Southwesterly,	1.94
Templeton,	.	.	Southwesterly end of 1907 section, .	Southwesterly,	.85
Templeton,	.	.	Lowell line to Wilmington line, .	Southeasterly,	6.00
Tewksbury,	.	.	Vineyard Haven to West Tisbury line,	Southwesterly,	1.93
Tisbury,	.	.	Groton line, .	Northwesterly,	4.69
Townsend,	.	.	West Townsend village, .	Westerly,	.74
Townsend, ²	.	.	Wellfleet line via Kelley's Corner, .	Northerly,	3.16
Truro, .	.	.	Tyngsborough bridge to Lowell line, .	Southeasterly,	2.95
Tyngsborough, .	.	.	Blackstone line, .	Northwesterly,	2.18
Uxbridge, .	.	.	Brimfield line, .	Southwesterly,	1.04
Wales, .	.	.	Norfolk line, .	Northerly,	2.60
Walpole (south),	.	.	Norwood line, .	Southerly,	1.94
Walpole (north),	.	.	New Braintree line, .	Southerly,	2.28
Ware, .	.	.	Junction of Palmer and Belchertown roads,	Northeasterly,	.63
Ware,	.	.	Wewacantit River bridge, Marion line, .	Northeasterly,	.71
Wareham,	.	.	Near High Street on Marion road, .	Southwesterly,	1.21
Wareham,	.	.	Cohasset Narrows bridge, .	Westerly, .	1.82
Wareham,	.	.	Parker's Mills, .	Northwesterly,	3.00
Wareham,	.	.	Northerly end of 1907 section, .	Northerly,	.66
Wareham,	.	.	Near Tremont village, .	Northerly,	.21

¹ Exclusive of 250 feet at railroad bridge.² Exclusive of 350 feet at Pearl Hill Brook.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Continued.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Warren,	1896-7-8,	West Warren,	Easterly,	1.89	1.89
Warren,	1907,	West Warren,	Westerly, . . . . .	.48	.48
Warren,	1908,	End of 1907 section to Palmer line,	Southwesterly, . . . . .	.31	.31
Warren,	1899-1900-1,	Warren to West Brookfield line,	Easterly,	1.41	1.41
Watertown,	1895-6,	Waltham line,	Easterly, . . . . .	.85	.85
Wayland, ¹	1897-1900-3,	Weston line to Sudbury line,	Westerly,	2.58	2.58
Webster,	1908,	Junction of Lake Street and Thompson Road,	Southeasterly, . . . . .	.65	.65
Wellesley,	1901,	Natick line to Blossom Street,	Easterly,	1.18	1.18
Wellfleet,	1903-4-5-7,	Eastham line,	Northerly,	4.65	4.65
Wenham,	1897-1901-3,	Beverly line to Hamilton line,	Northerly,	1.75	1.75
Westborough,	1897,	Northborough line,	Southeasterly, . . . . .	.72	.72
Westborough,	1903-6,	Southborough line,	Southwesterly,	2.28	2.28
West Boylston,	1897-8,	Worcester line,	Northerly,	1.55	1.55
West Bridgewater,	1900-1-2-4,	Brockton line to Bridgewater line,	Southerly,	3.16	3.16
West Brookfield,	1899,	Ware line to Ware line,	Southwesterly, . . . . .	.15	.15
West Brookfield,	1899-1900-1,	Brookfield line,	Northwesterly,	1.51	1.51
West Brookfield,	1905,	Warren line,	Easterly,	1.01	1.01
Westfield,	1894-6-8-9,	West Springfield line,	Westerly,	2.22	2.22
Westfield,	1898-9-1900-1-2,	Russell line,	Easterly,	3.59	3.59

Westford,	1902-3,	Littleton line,	Northerly,	3.25	3.25
Westminster,	1894-5-6-7-8-9,	Fitchburg line,	Southwesterly,	3.00	3.00
Westminster,	1903,	Gardner line,	Easterly,	2.25	2.25
West Newbury,	1895-6-7,	Newburyport line,	Westerly,	2.24	2.24
West Newbury,	1903-4-5-6,	Groveland line,	Northeasterly,	1.50	1.50
Weston,	1898-9,	Wayland line to near Stony Brook,	Easterly,	3.15	3.15
Westport,	1894-6-7-8,	Dartmouth line,	Easterly,	4.25	4.25
West Springfield,	1895-6,	Top of Tatham Hill,	Easterly,	1.17	1.17
West Springfield,	1905-6,	Top of Tatham Hill,	Westerly, . . . . .	.76	.76
West Tisbury,	1895-6-7-1904,	Tisbury line to Chilmark line,	Southwesterly,	5.35	5.35
Westwood,	1899-1900,	Norwood line to Dedham line,	Northerly,	1.05	1.05
Weymouth,	1894,	Holbrook line to Abington line,	Easterly, . . . . .	.25	.25
Weymouth,	1895-6-7,	Fore River to Back River,	Easterly,	1.75	1.75
Weymouth,	1903-4-7,	Broad Street via Washington and Main streets,	Southerly,	3.64	3.64
Weymouth,	1908,	Southerly end of 1907 section,	Southerly, . . . . .	.88	.88
Whately, ²	1899-1901-2-3-4-5-6,	Deerfield line to Hatfield line,	Southerly,	3.96	3.96
Whitman,	1894-5-6,	Brockton line,	Easterly,	1.70	1.70
Wilbraham, ³	1895-6-7-1901-3-4,	Springfield line to Palmer line,	Easterly,	4.81	4.81
Williamsburg,	1896-8-1901-3,	Goshen line,	Southeasterly,	2.65	2.65
Williamstown,	1907,	River Road, . . . . .	- . . . .	.13	.13
Williamstown,	1895-6-8-1903,	North Adams line,	Westerly,	1.95	1.95
Wilmington,	1907,	Tewksbury line,	Southeasterly, . . . . .	.54	.54

³ Exclusive of 1,763 feet at Wilbraham village.¹ Exclusive of 1,500 feet at railroad crossing and Sudbury River.² Exclusive of 375 feet at railroad crossing and 800 feet at bridge.

TABLE SHOWING THE HIGHWAYS LAID OUT OR CONTRACTED FOR BY THE COMMISSION, ETC. — *Concluded.*

TOWN OR CITY.	Year.	ROAD LAID OUT.			Length constructed (Miles).
		From —	Direction.	Length (Miles).	
Wilmington,	1908,	Southerly end of 1907 section, .	Southerly, .	.64	.64
Winchendon,	1907,	Glen Allen Road via Maple Street, .	Southwesterly, .	1.35	1.35
Winchendon, ¹	1907,	Millers River bridge, .	Southwesterly, .	.35	.35
Winchester,	1899-1900,	Arlington line to Woburn line, .	Northeasterly, .	1.96	1.96
Windsor, .	1897-1902-3,	Cummington line, .	Westerly, .	.98	.98
Windsor, .	1906-7,	Peru Street via Main Road, .	Southwesterly, .	.87	.71
Woburn, .	1900-1-2,	Winchester line to Burlington line, .	Northwesterly, .	2.03	2.03
Worcester,	1896-7,	Paxton line, .	Southeasterly, .	1.35	1.35
Worcester,	1897-1903,	Holden line, .	Southerly, .	1.50	1.50
Worcester,	1900-5,	West Boylston line, .	Southwesterly and southerly, .	1.32	1.32
Wrentham,	1899-1900-1,	Plainville line, .	Northerly, .	2.22	2.22
Wrentham,	1897-8-1902,	Norfolk line .	Southeasterly, .	1.87	1.87
Yarmouth (north),	1894-5-6,	Barnstable line to Dennis line, .	Easterly, .	3.71	3.71
Yarmouth (south),	1895-6-7,	Barnstable line to Bass River bridge, .	Easterly, .	5.09	5.09

¹ Grading only.

APPENDIX B.

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE DURING THE YEAR 1908, AND THE RESIDENT ENGINEERS ON SUCH WORK, TOGETHER WITH DATES OF BEGINNING AND ENDING.

Town or City.	County.	Lay-out.	Resident Engineer.	Date of Contract.	Date of Beginning, 1908.	Date of Ending, 1908.
Adams, No. 1,	Berkshire,	1908,	G. D. Marshall,	July 22, 1908,	Aug. 4,	Oct. 29
Adams, No. 1,	Berkshire,	1908,	E. S. Bingham,	July 22, 1908,	Oct. 30,	Nov. 12
Adams, No. 2,	Berkshire,	1908,	E. S. Bingham,	July 22, 1908,	Oct. 13,	Nov. 12
Ashby,	Middlesex,	1908,	L. L. Gerry,	April 9, 1908,	May 2,	Sept. 19
Auburn,	Worcester,	Surfacing,	L. T. C. Loring,	Sept. 22, 1908,	Oct. 1,	Dec. 12
Barnstable,	Barnstable,	1907,	W. P. Hammersley,	Aug. 27, 1907,	Mar. 18,	April 18
Becket,	Berkshire,	1908,	G. A. Curtis,	Oct. 13, 1908,	Oct. 27,	Dec. 19
Belchertown,	Hampshire,	1907,	E. S. Bingham,	Oct. 8, 1907,	Mar. 26,	April 18
Belchertown,	Hampshire,	1908,	E. S. Bingham,	Feb. 18, 1908,	Mar. 24,	April 18
Beverly,	Essex,	Surfacing,	F. H. Morris,	July 21, 1908,	Sept. 2,	Nov. 7
Billerica,	Middlesex,	1908,	P. H. Everett,	Sept. 29, 1908,	Oct. 14,	Dec. 17
Boston,	Suffolk,	1908,	H. R. Starbird,	May 12, 1908,	May 24,	June 20
Boston,	Suffolk,	1908,	E. J. Nichols,	May 12, 1908,	June 20,	Dec. 31
Brewster,	Barnstable,	1908,	W. P. Hammersley,	Aug. 25, 1908,	Aug. 31,	Dec. 31
Bridgewater,	Plymouth,	1908,	H. C. Holden,	Aug. 18, 1908,	Sept. 16,	Sept. 30
Brookton,	Plymouth,	Surfacing,	H. C. Holden,	Aug. 4, 1908,	Sept. 17,	Nov. 7
Canton,	Norfolk,	1908,	C. S. Tinkham,	June 23, 1908,	July 6,	Sept. 9
Charlton,	Worcester,	1907,	C. A. Welton,	Sept. 17, 1907,	Mar. 23,	May 2
Chelmsford,	Middlesex,	1908,	P. H. Everett,	May 5, 1908,	May 18,	Aug. 29
Chilmark,	Dukes,	1908,	H. C. Holden,	Sept. 29, 1908,	Oct. 22,	Nov. 16
Chilmark,	Dukes,	1908,	J. M. Bean,	Sept. 29, 1908,	Nov. 16,	Dec. 9

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE, ETC. — *Continued.*

Town or City.	County.	Lay-out.	Resident Engineer.	Date of Contract.	Date of Beginning, 1908.	Date of Ending, 1908.
Chilmark.	Dukes.	1908.	D. H. Dickinson.	Sept. 29, 1908.	Dec. 9,	Dec. 31
Deerfield.	Franklin.	1908.	W. G. Burns.	Sept. 14, 1908.	Aug. 10,	Nov. 11
Dover.	Norfolk.	1907.	C. H. Norton.	Sept. 5, 1907.	May 22,	June 20
Dighton.	Bristol.	1908.	W. M. Stodder.	Oct. 13, 1908.	Nov. 12,	Dec. 19
Draut.	Middlesex.	1907.	D. H. Winslow.	Sept. 3, 1907.	April 30,	July 22
Duxbury.	Plymouth.	1908.	H. O. Parker.	Aug. 4, 1908.	Sept. 1,	Oct. 8
Easton.	Bristol.	1908.	W. C. Holden.	Aug. 4, 1908.	Sept. 17,	Nov. 7
Falmouth.	Barnstable.	1908.	W. P. Hammersley.	July 21, 1908.	July 31,	Dec. 4
Fitchburg.	Worcester.	Surfacing.	L. L. Gerry.	July 21, 1908.	Sept. 21,	Oct. 23
Franklin.	Norfolk.	1907.	R. A. Vesper.	Sept. 3, 1907.	April 13,	May 1
Freetown.	Bristol.	1908.	W. M. Stodder.	Mar. 10, 1908.	April 27,	Oct. 17
Gardner.	Worcester.	Surfacing.	L. L. Gerry.	July 7, 1908.	Sept. 23,	Oct. 20
Gardner.	Worcester.	Surfacing.	C. H. Howes.	July 7, 1908.	Sept. 9,	Oct. 20
Gloucester.	Essex.	1907.	F. H. Morris.	Oct. 8, 1907.	April 7,	Nov. 7
Goshen.	Hampshire.	1908.	E. S. Bingham.	Aug. 4, 1908.	Aug. 27,	Oct. 22
Grafton.	Worcester.	Surfacing.	L. T. C. Loring.	Aug. 25, 1908.	Oct. 15,	Nov. 19
Granby.	Hampshire.	1908.	W. G. Burns.	Aug. 25, 1908.	Aug. 31,	Oct. 20
Great Barrington.	Berkshire.	Surfacing.	F. D. Sabin.	Aug. 4, 1908.	Aug. 18,	Nov. 5
Greenfield.	Franklin.	1908.	W. G. Burns.	May 26, 1908.	June 26,	Sept. 28
Groton.	Middlesex.	Bridge.	P. H. Everett.	Sept. 19, 1907.	June 17,	Sept. 21
Groton.	Middlesex.	Bridge.	E. J. Nichols.	Sept. 19, 1907.	April 18,	June 17
Hancock.	Berkshire.	1907.	F. D. Sabin.	July 30, 1907.	June 22,	Aug. 19
Hanover.	Plymouth.	1908.	H. O. Parker.	June 16, 1908.	Aug. 29,	Oct. 9
Harwich.	Barnstable.	1908.	W. P. Hammersley.	Aug. 25, 1908.	Aug. 31,	Dec. 31
Hatfield.	Hampshire.	1908.	E. S. Bingham.	May 19, 1908.	June 29,	Aug. 28
Haverhill.	Essex.	1907.	D. H. Winslow.	Aug. 27, 1907.	April 21,	June 13
Hingham.	Plymouth.	Surfacing.	H. O. Parker.	Aug. 18, 1908.	Oct. 26,	Dec. 9
Holden.	Worcester.	1908.	L. T. C. Loring.	Oct. 13, 1908.	Oct. 29,	Dec. 10
Huntington.	Hampshire.	Surfacing.	E. S. Bingham.	July 21, 1908.	Oct. 29,	Dec. 27
Ipswich.	Essex.	1908.	F. H. Morris.	Aug. 19, 1908.	Aug. 16,	Dec. 1
Lawrence.	Essex.	Surfacing.	D. H. Winslow.	Aug. 11, 1908.	Sept. 3,	Sept. 15

Lee, .	Berkshire, .	1908, .	F. D. Sabin, .	Sept. 22, 1908,	Oct. 5,	Nov. 30
Lee, .	Berkshire, .	Surfacing, .	F. D. Sabin, .	Aug. 4, 1908,	Sept. 15,	Nov. 28
Lee, .	Berkshire, .	1906, .	G. D. Marshall, .	Oct. 23, 1906,	April 14,	June 4
Lester, .	Worcester, .	Bridge, .	A. D. Dudley, .	June 16, 1908,	June 25,	Sept. 17
Lenox, .	Berkshire, .	1904-5, .	F. D. Sabin, .	July 30, 1907,	May 1,	June 17
Lenox, .	Berkshire, .	Surfacing, .	F. D. Sabin, .	Aug. 4, 1908,	Sept. 15,	Nov. 28
Lenox, .	Berkshire, .	1906, .	G. D. Marshall, .	Oct. 30, 1906,	April 23,	June 19
Lexington, .	Middlesex, .	Surfacing, .	P. H. Everett, .	July 14, 1908,	Aug. 8,	Oct. 19
Lincoln, .	Middlesex, .	Surfacing, .	P. H. Everett, .	July 14, 1908,	Aug. 8,	Oct. 19
Littleton, .	Middlesex, .	1908, .	L. L. Gerry, .	July 14, 1908,	Sept. 23,	Oct. 19
Lunenburg, .	Worcester, .	Surfacing, .	L. L. Gerry, .	Sept. 15, 1908,	Sept. 21,	Oct. 23
Marlborough, .	Plymouth, .	1907, .	P. H. Everett, .	Sept. 15, 1908,	Sept. 30,	Dec. 5
Medford, .	Middlesex, .	1908, .	F. H. Morris, .	May 28, 1907,	Jan. 1,	May 18
Methuen, .	Essex, .	1908, .	D. H. Winslow, .	Aug. 11, 1908,	Aug. 20,	Oct. 3
Middleborough, .	Plymouth, .	1908, .	H. C. Holden, .	June 10, 1908,	June 8,	Aug. 18
Montague, .	Franklin, .	1908, .	W. G. Burns, .	Feb. 18, 1908,	May 19,	Aug. 29
North Adams, .	Berkshire, .	Surfacing, .	F. D. Sabin, .	July 21, 1908,	July 31,	Aug. 20
North Andover, No. 1, .	Essex, .	1908, .	D. H. Winslow, .	May 5, 1908,	May 22,	Sept. 12
North Andover, No. 2, .	Essex, .	1908, .	D. H. Winslow, .	May 5, 1908,	May 27,	Sept. 12
North Attleborough, .	Bristol, .	Surfacing, .	H. O. Parker, .	Aug. 11, 1908,	Aug. 20,	Nov. 5
North Attleborough, .	Bristol, .	Surfacing, .	C. S. Tinkham, .	Aug. 11, 1908,	Aug. 29,	Nov. 5
North Brookfield, .	Worcester, .	1908, .	C. A. Welton, .	May 26, 1908,	July 13,	July 20
North Brookfield, .	Worcester, .	1908, .	L. T. C. Loring, .	May 26, 1908,	July 13,	Sept. 8
Northon, .	Bristol, .	1908, .	W. M. Stodder, .	Sept. 22, 1908,	Oct. 14,	Dec. 23
Orange, .	Franklin, .	Surfacing, .	R. A. Vesper, .	July 21, 1908,	Aug. 10,	Sept. 7
Orleans, .	Barnstable, .	1908, .	W. P. Hammersley, .	Aug. 25, 1908,	Aug. 31,	Dec. 31
Oxford, .	Worcester, .	1908, .	L. T. C. Loring, .	Sept. 22, 1908,	Oct. 5,	Dec. 12
Palmer, No. 1, .	Hampshire, .	1908, .	G. A. Curtis, .	April 7, 1908,	April 28,	Nov. 7
Palmer, Nos. 2 and 3, .	Hampshire, .	1908, .	G. A. Curtis, .	April 7, 1908,	July 18,	Nov. 7
Palmer, .	Hampshire, .	1908, .	C. A. Welton, .	April 7, 1908,	June 29,	July 18
Palmer, .	Hampshire, .	Surfacing, .	G. A. Curtis, .	Sept. 3, 1907,	April 18,	May 9
Palmer, .	Hampshire, .	Surfacing, .	L. T. C. Loring, .	Sept. 3, 1907,	Feb. 25,	April 8
Pepperell, .	Middlesex, .	Bridge, .	P. H. Everett, .	Sept. 19, 1907,	June 17,	Sept. 21
Pepperell, .	Middlesex, .	Bridge, .	E. J. Nichols, .	Sept. 19, 1907,	April 18,	June 17
Pittsfield (west), .	Berkshire, .	Surfacing, .	F. D. Sabin, .	July 21, 1908,	Sept. 2,	Sept. 19
Pittsfield (east), .	Berkshire, .	1907, .	G. R. Brown, .	July 30, 1907,	May 7,	May 23
Pittsfield, .	Berkshire, .	1904-5, .	F. D. Sabin, .	July 30, 1907,	May 7,	June 17

TABLE SHOWING TOWNS AND CITIES IN WHICH WORK HAS BEEN DONE, ETC. — *Concluded.*

TOWN or CITY.	County.	Lay-out.	Resident Engineer.	Date of Contract.	Date of Beginning, 1908.	Date of Ending, 1908.
Plainville.	Norfolk.	Surfacing.	C. S. Tinkham,	Aug. 25, 1908,	Sept. 23,	Nov. 14
Plymouth.	Plymouth,	1907.	C. S. Tinkham,	Oct. 1, 1907,	April 30,	July 14
Quincy.	Norfolk.	Surfacing.	H. O. Parker,	July 28, 1908,	Oct. 2,	Nov. 12
Norfolk.	Norfolk.	Surfacing.	H. O. Parker,	July 28, 1908,	Oct. 2,	Nov. 12
Rehoboth.	Bristol.	1908.	H. C. Holden,	June 9, 1908,	June 21,	July 4
Rehoboth.	Bristol.	1908.	W. M. Stodder,	June 9, 1908,	July 5,	Sept. 12
Russell.	Hampden.	Surfacing.	E. S. Bingham,	July 21, 1908,	Oct. 16,	Sept. 27
Salem.	Essex.	Surfacing.	F. H. Morris,	June 9, 1908,	June 19,	Sept. 11
Scituate.	Plymouth,	1908.	H. O. Parker,	July 7, 1908,	July 20,	Aug. 15
Scituate.	Plymouth,	1908.	C. S. Tinkham,	July 7, 1908,	July 10,	Aug. 20
Seekonk.	Bristol.	Surfacing.	W. M. Stodder,	July 28, 1908,	Sept. 10,	Oct. 24
Sharon.	Norfolk.	1908.	C. S. Tinkham,	June 30, 1908,	July 13,	Oct. 10
Sharon.	Norfolk.	1908.	H. C. Holden,	June 30, 1908,	July 8,	July 15
Shrewsbury.	Worcester,	Surfacing.	L. T. C. Loring,	July 14, 1908,	Aug. 12,	Nov. 30
Somerset.	Bristol.	Surfacing.	W. M. Stodder,	July 28, 1908,	Sept. 14,	Nov. 21
Somerville.	Middlesex.	1908.	F. H. Morris,	May 5, 1908,	May 15,	Dec. 2
Southborough.	Worcester,	1907.	C. A. Welton,	Oct. 1, 1907,	Mar. 23,	April 25
Sterling.	Worcester,	1907.	C. A. Welton,	Sept. 24, 1907,	April 14,	June 27
Stockbridge.	Berkshire,	1906.	F. D. Marshall,	Oct. 23, 1906,	April 14,	June 4
Swampscott.	Essex.	Surfacing.	G. H. Morris,	June 9, 1908,	June 19,	Sept. 11
Taunton.	Bristol.	Surfacing.	W. M. Stodder,	July 28, 1908,	Aug. 10,	Sept. 5
Taunton.	Bristol.	1907.	H. C. Holden,	Sept. 17, 1907,	Mar. 12,	April 27
Templeton.	Worcester,	1908.	R. A. Vesper,	June 16, 1908,	June 30,	Oct. 15
Ware.	Hampshire,	1908.	R. A. Vesper,	May 26, 1908,	May 27,	July 1
Wareham.	Plymouth,	1908.	H. C. Holden,	July 7, 1908,	July 16,	Aug. 20
Warren.	Worcester,	1908.	G. A. Curtis,	Mar. 24, 1908,	April 27,	July 18
Warren.	Worcester,	1907.	G. A. Curtis,	Sept. 24, 1907,	April 15,	July 1
Warren.	Worcester,	1908.	C. A. Welton,	Mar. 24, 1908,	June 29,	July 18
Webster.	Worcester,	1908.	C. A. Welton,	Mar. 17, 1908,	June 6,	July 30
Westminster.	Worcester,	Surfacing.	L. L. Gerry,	Aug. 18, 1908,	Aug. 27,	Sept. 26

Westminster,	.	Worcester,	.	Surfacing,	.	L. Gerry,	.	July	7, 1908,	Sept.	23,	Oct.	20
Westminster,	.	Worcester,	.	Surfacing,	.	C. H. Howes,	.	July	7, 1908,	Sept.	9,	Oct.	20
Weymouth,	.	Norfolk,	.	1907,	.	H. O. Parker,	.	Aug.	7, 1907,	Dec.	1,	Dec.	5
Weymouth,	.	Norfolk,	.	1908,	.	H. O. Parker,	.	Oct.	14, 1908,	Oct.	26,	Dec.	22
Whately,	.	Franklin,	.	Surfacing,	.	W. G. Burns,	.	July	14, 1908,	Aug.	17,	Sept.	5
Williamstown,	.	Berkshire,	.	Surfacing,	.	F. D. Sabin,	.	July	21, 1908,	Aug.	18,	Sept.	5
Wilmington,	.	Middlesex,	.	1908,	.	D. H. Winslow,	.	June	23, 1908,	July	9,	Sept.	19
Winchendon, No. 1,	.	Worcester,	.	1907,	.	L. L. Gerry,	.	Sept.	4, 1907,	July	1,	Oct.	15
Winchendon, No. 2,	.	Worcester,	.	1907,	.	L. L. Gerry,	.	Sept.	4, 1907,	May	7,	June	27
Windsor,	.	Berkshire,	.	1906,	.	F. D. Sabin,	.	Aug.	14, 1907,	June	8,	July	3
Windsor,	.	Berkshire,	.	1908,	.	F. D. Sabin,	.	July	21, 1908,	Aug.	13,	Oct.	14
Wrentham,	.	Norfolk,	.	Surfacing,	.	C. S. Tinkham,	.	Aug.	25, 1908,	Oct.	19,	Dec.	5

APPENDIX C.

SHOWING CONTRACT PRICES ON

	TOWN OR CITY.	Contract Number.	Contractor.	EXCAVATION.			Con- crete Masonry.	Shaping (Square Yard).
				All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).		
1	Adams,	1183	Guiseppi I. Cellilli, .	\$0 40	-	\$1 38	\$6 75	\$0 03
2	Auburn,	1217	Worcester Broken Stone Company.	70	-	-	-	-
3	Ashby, ³	1147	P. B. Elkins Company,	-	-	-	-	-
4	Becket,	1226	Joseph McCormick, .	41 00	-	1 25	13 00	03
5	Belchertown,	1138	Fred E. Ellis, . . .	47 60	\$0 75	3 00	10 00	03
6	Beverly,	1184	City,	-	-	-	-	-
7	Billerica,	1222	James E. Watkins, .	40	55	1 50	7 49	02
8	Boston,	1152	T. Stuart & Son Com- pany.	40	40	1 45	9 00	14 50
9	Bridgewater, ¹⁶	1206	Town,	-	-	-	-	-
10	Brockton-Easton,	1201	Joseph McCormick, .	-	-	-	-	-
11	Canton,	1168	Charles E. Horne, .	45	-	1 50	8 00	02
12	Chelmsford,	1149	Auguste Saucier, .	48 50	-	2 50	179 00	-
13	Chelmsford,	1164	Elias F. De La Haye, .	65	49	4 00	8 00	-
14	Chilmark,	1223	Town,	-	-	-	5 00	-
15	Deerfield,	1177	Olin T. Benedict, .	35	50	2 00	10 00	03
16	Dighton,	1177	Herbert E. Cushing, .	40	45	-	12 00	02
17	Duxbury,	1225	Town,	40	60	2 00	10 00	02
18	Falmouth,	1198	Town,	40	50	2 00	-	03
19	Falmouth,	1185	Lane Quarry Company,	40	50	2 00	9 00	03
20	Fitchburg-Lunenburg,	1186	Fred E. Ellis, . . .	-	-	-	-	-
21	Foxborough,	1227	Town,	-	-	-	-	-
22	Freetown,	1140	Town,	50	55	2 00	10 00	03
23	Gardner-Westminster,	1174	Town,	45	50	2 00	9 00	03
24	Gardner-Westminster,	1174	Francis J. Mague, .	50	-	-	10 00	03
25	Goshen,	1199	Richmond F. Hudson,	50	-	-	10 00	03
26	Grafton,	1211	Francis J. Mague, .	70	-	3 00	12 00	03
27	Grafton,	1211	Francis J. Mague, .	60	-	-	-	-

¹ Price per cubic yard.² Gravel binder.³ Lump sum, \$6,675.⁴ Excavation for bridge foundation.⁵ Stock fence.⁶ Fifteen-inch clay pipe.⁷ Ten-inch iron pipe.⁸ Eight-inch iron pipe.⁹ Ten-inch clay pipe.¹⁰ Eight-inch clay pipe.¹¹ Dry rubble masonry.¹² Loam.

APPENDIX C.

STATE ROADS DURING 1908.

BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (Lineal Foot).	Side Drains (Lineal Foot).	Stone Filling for Under- drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).	
Local (Ton).	Trap (Ton).	CLAY.			IRON.								
		Twelve-inch.	Eigh- teen- inch.	Twenty-four- inch.	Twelve-inch.	Eigh- teen- inch.	Twenty-four- inch.						
-	\$2 06	\$0 62	\$0 80	-	\$1 95	\$2 29	-	\$0 23	-	\$0 64	\$1 75	\$23 00	1
¹ \$0 85	-	-	-	-	-	-	-	-	² \$0 65	1 20	-	-	2
-	-	-	-	-	-	-	-	-	-	-	-	-	3
1 39	-	75	-	-	2 25	-	-	30	⁵ 12	90	1 50	-	4
-	2 16	64	1 20	⁶ \$0 80	1 95	71 50	⁸ \$1 30	⁹ 57	¹⁰ 51	-	1 50	30 00	5
1 70	-	-	-	-	-	-	-	-	-	-	-	-	6
-	1 75	60	⁹ 50	-	-	-	-	25	-	-	1 50	30 00	7
1 40	¹² 85	75	1 25	1 60	¹⁰ 50	⁹ 60	¹³ 75	30	¹⁴ 50	¹⁵ 85	2 00	30 00	8
-	-	-	-	-	-	-	-	-	-	-	-	-	9
1 74	-	-	-	-	-	-	-	-	-	-	-	-	10
1 33	-	75	⁹ 60	¹⁰ 50	-	-	-	30	-	-	1 75	35 00	11
¹⁸ 97	-	80	1 00	-	-	2 50	-	30	-	-	1 75	30 00	12
-	-	55	⁷ 75	-	¹⁹ 2 00	-	-	-	-	-	²⁰ 30 00	25 00	13
2 00	-	80	¹⁰ 50	⁶ 1 50	1 50	-	-	30	-	²¹ 65	2 10	27 00	14
-	2 00	²² 01	-	-	-	-	-	30	-	-	2 00	-	15
1 33	-	75	¹⁰ 60	⁶ 1 25	2 00	-	-	-	-	80	2 00	35 00	16
-	²³ 2 10	-	-	-	-	-	-	30	-	-	1 50	30 00	17
-	²³ 3 20	-	-	-	-	-	-	30	-	-	2 00	30 00	18
-	2 67	-	-	-	-	-	-	-	-	-	-	-	19
1 75	-	75	¹⁰ 50	-	-	-	-	30	-	85	1 50	26 00	20
1 30	-	75	¹⁰ 50	-	-	-	-	30	²⁴ 75	-	1 50	26 00	21
-	2 14	-	-	-	-	-	-	-	-	90	-	-	22
2 10	-	-	-	-	3 00	-	-	40	-	1 00	3 00	30 00	23
¹² 20	-	-	-	-	-	-	-	-	²⁸ 0	1 20	-	-	24

¹³ Iron fencing.¹⁴ Gravel.¹⁵ Gravel (screened).¹⁶ Lump sum, \$510.¹⁷ Portland cement concrete masonry in bridge.¹⁸ Gravel for surfacing.¹⁹ Sixteen-inch iron pipe.²⁰ Man-holes, each.²¹ Clay hardening or binder.²² Sixteen-inch iron pipe re-laid.²³ Stone from Cohasset quarry.²⁴ Cobble-stone gutters, per square yard.

SHOWING CONTRACT PRICES ON

	TOWN OR CITY.	Contract Number.	Contractor.	EXCAVATION.			Portland Cement concrete Masonry.	Shaping (Square Yard).
				All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).		
1	Granby, . . .	1212	Amos D. Bridge's Sons,	\$0 45	\$0 50	\$2 00	\$8 00	\$0 03
2	Great Barrington, . .	1200	D. Hammond & Bros.,	50	-	-	-	-
3	Greenfield, . . .	1156	Town, . . .	55	50	2 25	9 50	03
4	Hanover, . . .	1165	Edward J. Rourke, .	40	50	1 00	-	03
5	Harwich-Brewster-Orleans,	1210	Roland L. Mayo, .	22	33	2 00	7 00	-
6	Hatfield, . . .	1153	Town, . . .	75	55	-	9 00	03
7	Hingham, . . .	1207	Herbert L. Thomas, .	-	-	-	-	-
8	Holden, . . .	1221	Town, . . .	45	60	1 50	8 00	03
9	Ipswich, . . .	1209	Condon and Martin, .	50	55	2 00	610 00	03
10	Lawrence, . . .	1203	M. O'Mahoney, .	-	-	-	9 00	03
11	Lee, . . .	1218	M. L. Camarco, .	55	65	-	613 00	-
12	Lee-Lenox, . . .	1202	Olin T. Benedict, .	-	-	-	9 50	-
13	Leicester, ⁸ . . .	1166	George W. Carr Com- pany.	-	-	-	-	-
14	Lexington-Lincoln, .	1178	Fred E. Ellis, .	-	-	-	-	-
15	Littleton, . . .	1179	Harvey W. Tarbell, .	46	50	3 00	8 00	-
16	Marlborough, . . .	1216	City, . . .	50	60	2 00	10 00	-
17	Methuen, . . .	1204	James E. Watkins, .	40	45	50	8 00	02
18	Middleborough, . .	1162	Town, . . .	45	1 12	2 00	9 00	03
19	Montague, . . .	1139	Olin T. Benedict, .	40	60	2 50	12 00	03
20	North Adams, . .	1188	Olin T. Benedict, .	-	-	-	-	-
21	North Andover (south), .	1150	Edward Adams, .	50	60	2 00	8 00	02
22	North Andover (north), .	1150	Edward Adams, .	60	65	-	-	02
23	North Attleborough, .	1205	Richmond F. Hudson,	-	60	-	-	-
24	North Brookfield, . .	1157	Town, . . .	60	60	1 70	10 00	03
25	Norton, . . .	1219	Edward J. Rourke, .	40	50	1 50	10 00	03
26	Orange, . . .	1187	David T. Perry, .	-	-	-	-	-
27	Oxford, . . .	1220	Worcester Broken Stone Company.	60	60	2 00	10 00	03
28	Palmer, . . .	1145	Luigi C. Carchia, .	40	1 00	2 00	6 00	02
29	Palmer-Monson, . .	1146	Worcester Broken Stone Company.	45	1 00	3 00	12 00	03
30	Pittsfield, . . .	1189	Olin T. Benedict, .	-	-	-	-	-
31	Plainville, . . .	1214	Snow & Farrington, .	-	-	-	-	-
32	Quincy-Randolph, . .	1193	Fred E. Ellis, .	-	-	-	-	-

¹ Broken stone excavated, screened and replaced.² Eight-inch clay pipe.³ Ten-inch clay pipe.⁴ Stone from Cohasset quarry.⁵ Excavation for bridge foundation.⁶ Portland cement concrete masonry in bridge.

STATE ROADS DURING 1908 — *Continued.*

BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (Lineal Foot).	Side Drains (Lineal Foot).	Stone Filling for Under- drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).	
Local (Ton).	Trap (Ton).	CLAY.			IRON.								
		Twelve-inch.	Eigh- teen- inch.	Twenty-four- inch.	Twelve-inch.	Eigh- teen- inch.	Twenty-four- inch.						
-	\$2 40	\$0 90	-	-	\$2 25	-	-	\$0 25	-	-	\$2 00	\$30 00	1
1 70	2 95	-	-	-	-	-	-	-	-	\$1 35	-	-	2
-	1 95	85	-	-	2 75	-	-	35	-	-	2 00	30 00	3
1 60	-	-	-	-	-	-	-	30	-	-	2 00	30 00	4
-	-	240	30 55	-	-	-	-	30	-	-	1 25	30 00	5
-	2 10	-	1 60	-	-	\$3 50	-	35	-	-	1 50	-	6
-	2 05	-	-	-	-	-	-	-	-	-	-	-	7
1 50	-	75	-	-	2 00	-	-	25	-	85	1 50	-	8
-	1 85	-	1 75	-	-	-	-	28	-	-	1 70	25 00	9
-	1 75	-	-	-	-	-	-	-	-	-	-	-	10
-	-	85	1 40	-	2 50	3 25	-	35	75	1 45	2 50	25 00	11
-	2 55	-	-	-	-	-	-	-	-	-	-	-	12
-	-	-	-	-	-	-	-	-	-	-	-	-	13
-	2 72	-	-	-	-	-	-	-	-	-	-	-	14
-	-	-	80	\$1 40	-	-	-	25	755	-	1 00	-	15
-	-	75	91 00	-	1 50	102 50	-	30	-	-	2 00	30 00	16
1 47	-	-	1 65	112 00	-	-	-	27½	-	-	1 50	-	17
1 45	-	75	91 15	250	360	121 90	-	25	-	95	1 65	26 00	18
-	1 70	1 00	260	-	-	-	-	30	-	-	2 00	25 00	19
-	2 49	-	-	-	-	-	-	-	-	-	-	-	20
1 80	-	70	-	-	-	-	-	35	1390	-	2 00	30 00	21
1 90	-	-	-	-	-	-	-	-	-	-	-	-	22
1 50	-	-	-	-	-	-	-	-	-	1 00	-	-	23
-	2 10	80	-	-	-	-	-	30	-	95	2 00	-	24
1 35	-	75	1 50	91 25	2 50	111 85	-	30	-	85	2 00	30 00	25
-	2 50	-	-	-	-	-	-	-	-	-	-	-	26
1 35	-	70	-	-	-	-	-	30	-	80	2 00	-	27
1 40	-	1 00	2 00	-	2 00	3 00	-	25	1470	75	2 00	-	28
1 35	-	70	1 50	-	2 00	-	-	30	-	80	2 00	-	29
-	2 39	-	-	-	-	-	-	-	-	-	-	-	30
1 90	-	-	-	-	-	-	-	-	-	-	-	-	31
2 25	-	-	-	-	-	-	-	-	-	-	-	-	32

⁷ Gravel for surfacing.⁸ Lump sum, \$1,295.⁹ Fifteen-inch clay pipe.¹⁰ Sixteen-inch iron pipe.¹¹ Twenty-inch clay pipe.¹² Ten-inch iron pipe.¹³ Cobble-stone gutters, per square yard.¹⁴ Rock embankment, per cubic yard.

SHOWING CONTRACT PRICES ON

	TOWN OR CITY.	Contract Number.	Contractor.	EXCAVATION.			Con- crete Masonry.	Shaping (Square Yard).
				All Kinds (Cubic Yard).	Borrow (Cubic Yard).	Ledge (Cubic Yard).		
1	Rehoboth, . . .	1160	Edward J. Rourke, .	\$0 40	\$0 50	\$1 50	\$10 00	\$0 03
2	Russell-Huntington, .	1190	Lane Quarry Company,	-	-	-	-	-
3	Scituate, . . .	1175	Richmond F. Hudson,	50	60	-	10 00	03
4	Seekonk, . . .	1194	Herbert E. Cushing, .	-	-	-	-	-
5	Sharon, . . .	1171	Romano & Darena, .	45	50	1 50	9 00	02
6	Shrewsbury, . . .	1181	Charles E. Horne, .	50	-	-	-	-
7	Somerset, . . .	1195	Herbert E. Thomas, .	-	-	-	-	-
8	Somerville, . . .	1151	Coleman Bros., . .	40	75	2 00	-	03
9	Swampscott-Salem, .	1161	Michael McDonough, .	-	-	-	-	-
10	Taunton, . . .	1196	Herbert E. Cushing, .	-	-	-	-	-
11	Templeton, . . .	1167	Francis J. Mague, .	50	60	2 50	9 50	03
12	Ware, . . .	1158	Richmond F. Hudson,	50	60	2 00	10 00	02
13	Wareham, . . .	1176	Herbert L. Thomas, .	45	50	10	-	03
14	Warren, . . .	1144	Town, . . .	60	65	2 00	10 00	03
15	Webster, . . .	1142	Luigi C. Carechia, .	42	70	2 50	6 50	01½
16	Westminster, . . .	1208	Richmond F. Hudson,	-	-	-	-	7 11
17	Weymouth, . . .	1228	Town, . . .	45	50	2 00	9 00	03
18	Whately, . . .	1182	Olin T. Benedict, .	-	-	-	-	-
19	Wilmington, . . .	1169	John A. Gaffey, .	45	47	1 00	9 00	02
20	Williamstown, . . .	1191	David T. Perry, .	-	-	-	-	-
21	Windsor, . . .	1192	Town, . . .	45	45	1 75	10 50	03

¹ Ten-inch clay pipe.² Eight-inch clay pipe.³ Fifteen inch clay pipe.⁴ Ten-inch iron pipe.

STATE ROADS DURING 1908 — *Concluded.*

BROKEN STONE.		PIPE CULVERTS (PER LINEAL FOOT).						Fencing (Lineal Foot).	Side Drains (Lineal Foot).	Stone Filling for Under-drains (per Cubic Yard).	Bounds (Each).	Catch-basins (Each).	
Local (Ton).	Trap (Ton).	CLAY.			IRON.								
		Twelve-inch.	Eighteen-inch.	Twenty-four-inch.	Twelve-inch.	Eighteen-inch.	Twenty-four-inch.						
\$1 40	-	\$0 75	1\$0 60	2\$0 50	\$2 25	3\$1 25	-	\$0 30	-	\$0 75	\$2 00	\$30 00	1
-	\$2 20	-	-	-	-	-	-	-	-	-	-	-	2
1 60	-	250	-	-	-	-	-	30	-	-	2 00	30 00	3
1 35	-	-	-	-	-	-	-	-	-	-	-	-	4
1 45	-	250	-	-	-	-	-	27	-	-	1 50	25 00	5
1 40	-	-	-	-	-	-	-	-	-	89	-	-	6
-	2 57	-	-	-	-	-	-	-	-	-	-	-	7
1 25	1 85	50	40	-	-	-	-	35	\$1 00	61 00	2 00	30 00	8
-	1 39	-	-	-	-	-	-	-	-	-	-	-	9
1 58	-	-	-	-	-	-	-	-	-	-	-	-	10
-	2 10	75	-	-	2 00	-	-	30	-	-	1 75	-	11
-	2 30	70	-	-	2 00	-	-	30	-	-	2 00	25 00	12
-	2 00	260	-	-	-	-	-	-	-	-	2 00	-	13
-	1 75	80	1 25	-	2 25	-	-	30	-	90	2 00	-	14
1 35	-	1 00	-	-	2 25	-	-	25	-	95	1 50	-	15
-	2 30	-	-	-	-	-	-	-	-	-	-	-	16
1 47	-	75	165	250	41 75	-	-	30	-	-	1 50	26 00	17
-	2 50	-	-	-	-	-	-	-	-	-	-	-	18
-	1 85	-	1 45	-	-	3 00	-	27	-	-	1 40	-	19
-	2 65	-	-	-	-	-	-	-	-	-	-	-	20
1 60	-	75	-	-	2 90	-	-	35	-	70	3 50	-	21

⁵ Gravel.⁶ Rock embankment, per cubic yard.⁷ Tarvia.

APPENDIX D.

STATEMENT OF CLAIMS AGAINST THE COMMISSION.

[As required by section 5, chapter 18 of the Revised Laws.]

NAME.	Residence.	Nature of Claim.
Chase, Charles A., .	Somerset, .	Damages caused by drainage conditions on State highway at Somerset.
Gatchell, David H., .	Templeton, .	Damages due to accident alleged to have occurred on State road in Templeton.
Hill, Everett, .	Charlton, .	Damages due to construction of State highway at Charlton.
Lincoln, Benj. A., .	Taunton, .	Damages due to construction of State highway at Taunton.
Seabury, Phœbe W., .	Dartmouth, .	Damages due to construction of State highway at Dartmouth.
Sullivan, Kate, .	Millbury, .	Damages due to construction of State highway at Millbury.
Talbot, Joseph, .	Taunton, .	Damages due to construction of State highway at Taunton.
Warren, Alice E. M., .	Auburn, .	Damages due to construction of State highway at Auburn.

APPENDIX E.

COST PER MILE OF ROAD (SECTIONS COMPLETED DURING THE
YEAR 1908).¹

TOWN OR CITY.	Square Yards.	Miles.	Cost per Mile.
Adams,	12,845	1.460	\$9,904 14
Barnstable,	4,828	.549	10,747 80
Belchertown, 1908,	4,868	.553	9,112 96
Belchertown, 1907,	3,775	.428	9,281 00
Bridgewater,	672	.077	6,662 46
Canton,	8,858	1.007	4,629 98
Charlton,	4,083	.464	11,642 26
Chelmsford, ²	8,583	.994	5,178 52
Deerfield,	6,527	.742	8,351 17
Dover, ²	10,492	1.192	3,232 67
Dracut,	5,250	.597	9,163 13
Duxbury,	5,350	.608	6,920 61
Falmouth,	3,552	.404	9,567 05
Franklin,	5,697	.647	9,597 48
Freetown,	5,952	.677	7,637 06
Granby,	2,533	.288	9,375 10
Gloucester,	4,610	.524	8,840 13
Goshen,	4,867	.553	10,902 82
Greenfield,	4,515	.513	8,794 60
Hanover,	5,922	.673	5,260 74
Hatfield,	4,000	.455	10,134 63
Haverhill-Methuen,	7,397	.841	13,588 16
Ipswich,	4,290	.488	9,324 91
Lee-Stockbridge, ²	28,500	3.239	5,217 93
Lenox, ²	20,393	2.200	4,518 85
Medford, ³	14,162	.862	30,703 48
Methuen,	6,798	.773	7,519 52
Middleborough,	7,570	.860	7,136 15
Monson-Palmer,	9,693	1.102	10,162 39

¹ Exclusive of cost of bridges.² Gravel road.³ Macadam 28 feet wide.

COST PER MILE OF ROAD, ETC. — *Concluded.*

TOWN OR CITY.	Square Yards.	Miles.	Cost per Mile.
Montague,	9,458	1.075	\$9,299 92
North Andover,	4,003	.455	12,762 59
North Brookfield,	4,082	.464	12,076 29
Pittsfield,	9,815	1.115	11,221 70
Plymouth, ¹	7,099	.885	5,786 08
Rehoboth,	9,967	1.133	6,631 14
Richmond, ²	4,522	.514	6,621 60
Scituate,	4,833	.550	9,527 76
Sharon,	5,613	.638	6,364 39
Somerville, ³	19,062	1.161	24,571 31
Southborough, ²	5,750	.653	4,814 99
Sterling,	3,083	.578	9,940 70
Taunton,	5,833	.661	8,491 36
Templeton,	7,480	.850	9,525 68
Ware,	5,575	.634	9,176 31
Wareham,	5,792	.658	6,044 62
Warren, 1908,	2,750	.312	12,432 48
Warren, 1907,	4,260	.488	10,949 76
Webster,	5,752	.654	8,033 85
Wilmington,	5,587	.635	7,031 60
Winchendon (first),	11,853	1.347	4,739 57
Winchendon (second), ⁴	4,289	.352	3,981 16
Windsor,	3,333	.380	6,844 34
Totals,	366,373	39.962	-
Average cost per mile,			\$8,759 64

¹ Macadam 12 and 15 feet wide.² Gravel road.³ Macadam 28 feet wide.⁴ Grading.

APPENDIX F.

MAINTENANCE.

Table showing the Amounts expended for Repairs and Maintenance and the Cost per Mile per Year on Each Road finished previous to 1908; also the Number of Miles of Road under Maintenance and the Amounts to be assessed upon Municipalities for Maintenance under Chapter 47 of the Revised Laws.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Abington, . . .	\$759 61	\$256 52	\$1,016 13	\$76 12	3.370	\$168 50
Acton, . . .	1,289 18	1,008 77	2,297 95	188 06	5.364	268 20
Acushnet, . . .	4,114 40	285 53	4,399 93	84 10	3.395	169 75
Adams, . . .	554 23	41 51	595 74	73 08	.568	28 40
Agawam, . . .	539 25	401 65	940 90	180 52	2.225	111 25
Amesbury, . . .	1,041 11	262 29	1,303 40	86 96	3.016	150 80
Amherst, . . .	422 41	307 95	730 36	317 14	.971	48 55
Andover, . . .	2,901 57	2,309 64	5,211 21	550 96	4.192	209 60
Ashby, . . .	3,797 16	277 25	4,074 41	77 64	3.571	178 55
Ashfield, . . .	1,976 94	\$37 85	2,814 79	521 05	1.608	80 40
Ashland, . . .	150 07	46 69	196 76	31 69	1.473	46 69
Athol, . . .	6,675 80	189 31	6,865 11	60 79	3.104	155 20
Attleborough, . . .	3,378 55	225 58	3,604 13	85 09	2.651	132 55
Auburn, . . .	2,951 92	416 84	3,368 76	79 21	5.263	263 15
Barnstable, . . .	2,530 79	405 79	2,936 58	63 18	6.422	321 10
Barre, . . .	1,260 43	227 32	1,487 75	78 63	2.891	144 55
Becket, . . .	664 85	325 16	990 01	160 41	2.027	101 35
Bedford, . . .	325 01	348 37	673 38	211 52	1.647	82 35
Belchertown, . . .	496 29	204 24	700 53	86 83	2.352	117 60
Bellingham, . . .	146 65	161 68	308 33	51 18	3.159	157 95
Berkley, . . .	—	164 19	164 19	214 34	.766	38 30
Beverly, . . .	9,228 65	1,341 78	10,570 43	236 22	5.680	284 00

Table showing the Amounts expended for Repairs, etc. — Continued.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Billerica, ¹ . . .	-	\$147 27	\$147 27	-	-	-
Blackstone, . . .	\$840 72	341 88	1,182 60	\$190 25	1.797	\$89 85
Bourne, . . .	1,199 12	759 20	1,958 32	168 04	4.518	225 90
Boxborough, . . .	548 11	354 64	902 75	107 11	3.311	165 55
Braintree, . . .	251 08	179 46	460 54	169 14	1.061	53 05
Brewster, . . .	4,732 52	605 99	5,338 51	77 83	7.786	389 30
Bridgewater, . . .	204 75	177 72	382 47	50 99	3.485	174 25
Brimfield, . . .	1,751 01	134 60	1,915 61	33 93	3.966	134 60
Brockton, . . .	1,874 82	455 23	2,330 05	142 88	3.186	159 30
Brookfield, . . .	2,113 86	529 52	2,643 38	136 12	3.890	194 50
Buckland, . . .	4,299 53	673 30	4,972 83	157 31	4.280	214 00
Burlington, . . .	1,097 04	313 04	1,410 08	82 39	3.799	189 95
Canton, . . .	151 50	291 14	442 64	90 08	3.232	161 60
Charlemont, . . .	3,934 70	322 30	4,257 00	420 21	.767	38 35
Charlton, . . .	932 79	296 81	1,229 60	92 32	3.215	160 75
Chatham, . . .	1,305 54	311 02	1,616 56	43 28	7.185	311 02
Chelmsford, . . .	1,075 92	562 71	1,638 63	133 78	4.206	210 30
Chelsea, . . .	353 91	108 89	462 80	113 54	.959	47 95
Cheshire, . . .	1,316 43	595 55	1,911 98	229 49	2.595	129 75
Chester, . . .	1,978 44	382 12	2,360 56	117 75	3.245	162 25
Chicopee, . . .	7,585 15	1,573 02	9,158 17	403 34	3.900	195 00
Chilmark, . . .	158 82	153 19	312 01	54 73	2.799	139 95
Clarksburg, . . .	226 78	94 97	321 75	158 01	.601	30 05
Cohasset, . . .	609 42	329 96	939 38	144 65	2.281	114 05
Colrain, . . .	1,461 16	160 78	1,621 94	75 38	2.133	106 65
Concord, . . .	1,702 99	387 61	2,090 60	106 86	3.627	181 35
Dalton, . . .	4,587 84	430 76	5,018 60	168 52	2.556	127 80
Dartmouth, . . .	1,484 35	378 77	1,863 12	83 43	4.540	227 00
Deerfield, . . .	5,532 31	554 11	6,086 42	101 39	5.465	273 25
Dennis, . . .	4,551 10	491 67	5,042 77	65 58	7.497	374 85
Dighton, . . .	251 08	250 60	501 68	119 04	2.105	105 25
Douglas, . . .	631 90	268 16	900 06	126 19	2.125	106 25
Dover, . . .	23 19	192 32	215 51	88 18	2.181	109 05
Dracut, . . .	17 94	7 38	25 32	4 03	1.828	7 38

¹ Moth suppression.

Table showing the Amounts expended for Repairs, etc. — Continued.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Dudley, . . .	\$1,009 45	\$497 99	\$1,507 44	\$217 17	2.293	\$114 65
Duxbury, . . .	1,962 04	441 89	2,403 93	98 86	4.470	223 50
East Longmeadow, .	84 99	54 66	139 65	52 46	1.042	52 10
Eastham, . . .	1,136 01	494 26	1,630 27	146 19	3.381	169 05
Easthampton, . .	1,709 84	397 03	2,106 87	166 61	2.383	119 15
Easton, . . .	322 50	209 31	531 81	261 31	.801	40 05
Edgartown, . . .	868 52	11 03	879 55	4 56	2.416	-
Erving, . . .	1,634 83	436 53	2,071 36	160 78	2.715	135 75
Essex, . . .	310 94	78 26	389 20	224 24	.349	17 45
Fairhaven, . . .	851 14	156 04	1,007 18	107 68	1.449	72 45
Falmouth, . . .	1,370 23	1,057 15	2,427 38	78 68	13.436	671 80
Fitchburg, . . .	5,037 59	401 08	5,438 67	97 38	4.118	205 90
Foxborough, . . .	337 06	194 43	531 49	68 49	2.838	141 90
Framingham, . . .	14 85	107 43	122 28	44 16	2.432	107 43
Franklin, . . .	79 34	61 05	140 39	44 31	1.377	61 05
Freetown, . . .	644 49	194 03	838 52	50 12	3.870	193 50
Gardner, . . .	2,832 78	463 68	3,296 46	138 12	3.356	167 80
Gloucester, . . .	5,447 01	3,800 05	9,277 06	952 72	3.988	199 40
Goshen, . . .	5,128 25	929 31	6,057 56	377 67	2.460	123 00
Grafton, . . .	933 47	297 37	1,230 84	145 08	2.049	102 45
Granby, . . .	2,204 17	231 94	2,436 11	102 76	2.257	112 85
Great Barrington, .	8,512 40	2,393 33	10,905 73	701 52	3.411	170 55
Greenfield, . . .	738 54	160 38	898 92	45 54	3.521	160 38
Groton, . . .	347 13	130 99	478 12	94 74	1.382	69 10
Groveland, . . .	608 44	262 57	871 01	152 33	1.723	86 15
Hadley, . . .	4,742 40	415 65	5,158 05	88 63	4.689	234 45
Hamilton, . . .	1,561 69	861 77	2,423 46	597 78	1.441	72 05
Hancock, . . .	6,671 42	954 06	7,625 48	295 13	3.232	161 60
Hanover, . . .	63 00	43 10	106 10	23 33	1.847	43 10
Hardwick, . . .	509 12	263 75	772 87	321 80	.819	40 95
Harvard, . . .	256 50	123 95	380 45	78 32	1.582	79 10
Harwich, . . .	2,331 27	430 77	2,762 04	84 48	5.098	254 90
Hatfield, . . .	392 78	64 40	457 18	54 82	1.174	58 70
Haverhill, . . .	6,871 96	390 24	7,262 20	110 29	3.538	176 90

Table showing the Amounts expended for Repairs, etc. — Continued.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Hingham, . . .	\$2,059 11	\$291 74	\$2,350 85	\$109 75	2.658	\$132 90
Hinsdale, . . .	333 32	102 85	436 17	101 13	1.017	50 85
Holbrook, . . .	880 02	119 44	999 46	68 21	1.751	87 55
Holden, . . .	2,810 71	494 10	3,304 81	115 39	4.282	214 10
Holliston, . . .	1 86	22 63	24 49	15 52	1.458	22 63
Hudson, . . .	51 27	112 92	164 19	98 87	1.142	57 10
Huntington, . . .	6,484 32	104 39	6,588 71	52 29	1.996	99 80
Ipswich, . . .	-	122 61	122 61	144 92	.846	42 30
Kingston, . . .	131 84	126 00	257 84	124 01	1.016	50 80
Lakeville, . . .	722 92	246 25	969 17	68 97	3.570	178 50
Lancaster, . . .	378 47	104 62	483 09	83 76	1.249	62 45
Lawrence, . . .	1,838 28	1,019 87	2,858 15	3,819 73	.267	13 35
Lee, . . .	9,752 44	1,757 15	11,509 59	339 94	5.169	258 45
Leicester, . . .	15,123 25	684 13	15,807 38	141 17	4.846	242 30
Lenox, . . .	6,684 86	3,819 74	10,504 60	498 46	7.663	383 15
Leominster, . . .	541 74	75 61	617 35	34 71	2.178	75 61
Lexington, . . .	3,016 53	7,815 28	10,831 81	1,821 31	4.291	214 55
Lincoln, . . .	3,348 23	2,626 89	5,975 12	1,275 18	2.060	103 00
Littleton, . . .	811 27	460 74	1,272 01	176 12	2.616	130 80
Lowell, . . .	13,064 71	423 64	13,488 35	159 68	2.653	132 65
Lunenburg, . . .	1,704 82	362 72	2,067 54	133 25	2.722	136 10
Lynn, . . .	2,182 04	933 81	3,115 85	1,032 97	.904	45 20
Mansfield, . . .	210 89	129 83	340 72	107 03	1.213	60 65
Marion, . . .	1,700 44	562 35	2,262 79	100 97	5.569	278 45
Marlborough, . . .	3,221 73	2,176 18	5,397 91	394 16	5.521	276 05
Marshfield, . . .	1,548 97	427 00	1,975 97	92 80	4.601	230 05
Mattapoisett, . . .	1,056 59	412 34	1,468 93	128 61	3.206	160 30
Medford, . . .	-	3 27	3 27	3 79	.862	3 27
Melrose, . . .	137 02	63 89	200 91	161 74	.395	19 75
Merrimac, . . .	1,152 79	287 78	1,440 57	135 61	2.122	106 10
Methuen, . . .	3,594 88	383 04	3,977 92	131 13	2.921	146 05
Middleborough, . . .	1,604 00	646 43	2,250 43	55 17	11.716	585 80
Milford, . . .	64 32	63 59	127 91	36 44	1.745	63 59
Millbury, . . .	570 53	196 53	767 06	65 90	2.982	149 10

Table showing the Amounts expended for Repairs, etc. — Continued.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Milton, . . .	\$2,902 85	\$223 28	\$3,126 13	\$256 34	.871	\$43 55
Monson, . . .	1,132 23	86 12	1,218 35	64 84	1.328	66 40
Montague, . . .	1,240 71	140 57	1,381 28	32 66	4.303	140 57
Nantucket, . . .	4,046 63	392 93	4,439 56	60 64	6.479	323 95
Natick, . . .	536 39	230 65	767 04	72 08	3.200	160 00
Needham, . . .	76 63	27 29	103 92	13 41	2.034	27 29
New Braintree, . . .	161 35	34 06	195 41	85 79	.397	19 85
Newbury, . . .	1,771 04	1,776 30	3,547 34	419 82	4.231	211 55
Newburyport, . . .	1,353 66	443 18	1,796 84	252 66	1.754	87 70
Newton, . . .	102 20	1 25	103 45	1 21	1.032	1 25
Norfolk, . . .	815 76	215 82	1,031 58	148 43	1.454	72 70
North Adams, . . .	10,527 68	4,293 22	14,820 90	1,071 16	4.008	200 40
Northampton, . . .	1,954 59	670 62	2,625 21	171 12	3.919	195 95
North Andover, . . .	898 25	91 06	989 31	48 17	1.890	91 06
North Attleborough, . . .	3,037 80	685 61	3,723 41	190 61	3.597	179 85
Northborough, . . .	1,133 52	332 20	1,465 72	83 55	3.976	198 80
North Brookfield, . . .	166 89	100 50	267 39	55 00	1.827	91 35
Northfield, . . .	370 87	90 25	461 12	78 00	1.157	57 85
North Reading, . . .	825 89	1,057 60	1,883 49	457 83	2.310	115 50
Norton, . . .	1,066 83	119 23	1,186 06	97 72	1.220	61 00
Norwood, . . .	4,404 85	816 62	5,221 47	398 35	2.050	102 50
Oak Bluffs, . . .	4,125 03	302 05	4,427 08	127 45	2.370	118 50
Orange, . . .	4,650 56	2,272 05	6,922 61	473 64	4.797	239 85
Orleans, . . .	856 88	333 31	1,190 19	80 45	4.143	207 15
Oxford, . . .	52 87	1 43	54 30	1 68	.849	1 43
Palmer, . . .	1,652 56	782 04	2,434 60	148 67	5.260	263 00
Paxton, . . .	7,162 26	369 46	7,531 72	102 71	3.597	179 85
Pembroke, . . .	94 13	146 08	240 21	417 37	.350	17 50
Phillipston, . . .	3,311 00	111 43	3,422 43	57 11	1.951	97 55
Pittsfield, . . .	9,083 94	3,428 42	12,512 36	541 52	6.331	316 55
Plainville, . . .	296 44	389 22	685 66	215 51	1.806	90 30
Plymouth, . . .	4,293 54	604 18	4,897 72	101 93	5.927	296 35
Princeton, . . .	857 86	79 34	937 20	35 59	2.229	79 34
Provincetown, . . .	415 77	82 51	498 28	74 87	1.102	55 10

Table showing the Amounts expended for Repairs, etc. — Continued.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Quincy, . . .	\$3,548 09	\$188 25	\$3,736 34	\$82 09	2.293	\$114 65
Randolph, . . .	380 47	68 64	449 11	49 63	1.383	68 64
Raynham, . . .	252 62	103 65	356 27	70 17	1.477	73 85
Reading, . . .	1,707 71	2,615 89	4,323 60	700 18	3.736	186 80
Rehoboth, . . .	1,388 97	475 79	1,864 76	78 65	6.049	302 45
Revere, . . .	3,389 42	1,088 57	4,477 99	872 25	1.248	62 40
Richmond, . . .	2,008 95	895 19	2,904 14	222 79	4.018	200 90
Rochester, . . .	1,880 41	220 72	2,101 13	41 88	5.270	220 72
Rockland, . . .	184 47	238 49	422 96	101 31	2.354	117 70
Rockport, . . .	105 16	31 61	136 77	33 69	.938	31 61
Rowley, . . .	6 93	56 25	63 18	46 37	1.213	56 25
Russell, . . .	12,020 98	915 28	12,936 26	137 53	6.655	332 75
Rutland, . . .	190 96	92 40	283 36	79 66	1.160	58 00
Salem, . . .	3 03	6 59	9 62	49 54	.133	6 59
Salisbury, . . .	333 19	709 79	1,042 98	490 52	1.447	72 35
Sandwich, . . .	3,231 00	306 24	3,537 24	108 52	2.822	141 10
Saugus, . . .	2,777 56	2,131 09	4,908 65	1,189 22	1.792	89 60
Scituate, . . .	1,693 34	366 74	2,060 08	88 11	4.162	208 10
Seekonk, . . .	543 55	2,102 96	2,646 51	762 77	2.757	137 85
Shelburne, . . .	4,834 08	316 42	5,150 50	146 55	2.159	107 95
Shrewsbury, . . .	7,956 19	4,963 20	12,919 39	1,021 65	4.858	242 90
Somerset, . . .	2,674 46	1,422 37	4,096 83	204 77	6.946	347 30
Southampton, . . .	94 61	7 91	102 52	12 00	.659	—
Southborough, . . .	185 10	89 98	275 08	35 31	2.548	89 98
Southbridge, . . .	70 47	826 74	897 21	609 24	1.357	67 85
South Hadley, . . .	5,634 44	1,449 57	7,084 01	283 01	5.122	256 10
Spencer, . . .	1,115 86	330 31	1,446 17	135 37	2.440	122 00
Sterling, . . .	1,163 77	318 22	1,481 99	102 78	3.096	154 80
Stockbridge, . . .	131 31	1,675 28	1,806 59	605 23	2.768	138 40
Stoneham, . . .	1,681 00	3,395 59	5,076 59	2,146 38	1.582	79 10
Stoughton, . . .	659 98	395 20	1,055 18	119 64	3.303	165 15
Sturbridge, . . .	484 57	94 93	579 50	55 02	1.725	86 25
Sudbury, . . .	6,751 09	4,681 47	11,432 56	915 42	5.114	255 70
Sunderland, . . .	448 62	99 74	548 36	72 11	1.383	69 15

Table showing the Amounts expended for Repairs, etc. — Continued.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Sutton, . . .	\$2,020 43	\$258 74	\$2,279 17	\$113 43	2.281	\$114 05
Swampscott, . .	2,267 52	653 49	2,921 01	438 58	1.490	74 50
Swansea, . . .	300 31	174 17	474 48	47 02	3.704	174 17
Taunton, . . .	2,005 97	1,879 24	3,885 21	401 97	4.675	233 75
Templeton, . .	846 12	425 52	1,271 64	88 91	4.786	239 30
Tewksbury, . .	762 05	301 22	1,063 27	50 22	5.998	299 90
Tisbury, . . .	1,675 04	149 29	1,824 33	77 31	1.931	96 55
Townsend, . .	1,824 99	290 52	2,115 51	52 98	5.483	274 15
Truro, . . .	2,714 64	406 52	3,121 16	128 65	3.160	158 00
Tyngsborough, .	3,353 35	524 77	3,878 12	178 37	2.942	147 10
Uxbridge, . . .	811 17	195 67	1,006 84	89 92	2.176	108 80
Wales, . . .	289 26	41 14	330 40	39 56	1.040	41 14
Walpole, . . .	3,384 38	2,083 20	5,467 58	459 05	4.538	226 90
Ware, . . .	1,001 09	473 23	1,474 32	162 28	2.916	145 80
Wareham, . . .	1,714 24	783 94	2,498 18	124 57	6.293	314 65
Warren, . . .	2,979 07	563 56	3,542 63	137 45	4.100	205 00
Watertown, . .	2,967 76	387 22	3,354 98	455 55	.850	42 50
Wayland, . . .	5,618 51	464 58	6,083 09	180 00	2.581	129 05
Wellesley, . .	349 91	110 49	460 40	93 95	1.176	58 80
Wellfleet, . . .	1,588 53.	750 14	2,338 67	160 62	4.670	233 50
Wenham, . . .	1,227 35	1,774 52	3,001 87	1,011 69	1.754	87 70
Westborough, . .	444 27	244 70	688 97	81 81	2.991	149 55
West Boylston, .	1,556 49	119 45	1,675 94	76 91	1.553	77 65
West Bridgewater, .	1,090 01	456 76	1,546 77	144 54	3.160	158 00
West Brookfield, .	1,040 31	431 33	1,471 64	161 24	2.675	133 75
Westfield, . . .	6,963 38	683 44	7,646 82	117 73	5.805	290 25
Westford, . . .	1,385 22	613 10	1,998 32	188 87	3.246	162 30
Westminster, . .	5,894 75	1,409 49	7,304 24	268 62	5.247	262 35
West Newbury, . .	4,474 69	696 35	5,171 04	187 29	3.718	185 90
Weston, . . .	4,769 67	776 33	5,546 00	246 29	3.152	157 60
Westport, . . .	9,735 38	169 03	9,904 41	39 73	4.254	169 03
West Springfield, .	1,322 70	227 70	1,550 40	119 15	1.911	95 55
West Tisbury, . .	1,779 16	—	1,779 16	—	5.348	—
Westwood, . . .	1,595 83	116 20	1,712 03	110 98	1.047	52 35

Table showing the Amounts expended for Repairs, etc. — Concluded.

TOWN OR CITY.	Expended to 1908.	Expended in 1908.	Total.	Expended per Mile in 1908.	Length under Maintenance (Miles).	Amount to be assessed on Cities or Towns.
Weymouth, . .	\$6,036 54	\$695 46	\$6,732 00	\$144 94	4.798	\$239 90
Whately, . . .	578 81	1,092 83	1,671 64	276 11	3.958	197 90
Whitman, . . .	1,391 00	307 10	1,698 10	180 96	1.697	84 85
Wilbraham, . .	2,449 84	1,009 89	3,459 73	209 69	4.816	240 80
Williamsburg, . .	2,373 70	605 95	2,979 65	228 40	2.653	132 65
Williamstown, . .	5,842 62	1,283 06	7,125 68	615 96	2.083	104 15
Wilmington, . .	7 00	17 58	24 58	14 97	1.174	17 58
Winchester, . .	2,636 33	479 50	3,115 83	245 64	1.952	97 60
Winchendon, . .	-	30 72	30 72	18 07	1.700	30 72
Windsor, . . .	532 11	161 86	693 97	95 21	1.700	85 00
Woburn,	1,767 19	213 01	1,980 20	104 77	2.033	101 65
Worcester, . . .	6,996 44	596 60	7,593 04	134 36	4.440	222 00
Wrentham, . . .	2,337 77	495 49	2,833 26	121 08	4.092	204 60
Yarmouth (north), .	3,005 54	589 14	3,594 68	158 54	3.716	185 80
Yarmouth (south), .	5,754 30	362 74	6,117 04	71 37	5.082	254 10
Totals,	\$526,765 57	\$147,037 37	\$673,802 94	-	720.241	\$34,596 72

NOTE. — Contracts have been made with the towns of Edgartown, Southampton and West Tisbury for the maintenance of the State highways in said towns at the rate of \$50 per mile per year. No payments have been made to said towns under these contracts, and no assessments are made in the foregoing statement.

APPENDIX G.

STATEMENT SHOWING THE NUMBER OF PETITIONS RECEIVED
AND THE LENGTH OF WAY PETITIONED FOR, THE LAY-
OUTS MADE AND THEIR LENGTH AND DISTRIBUTION IN
THE VARIOUS COUNTIES OF THE COMMONWEALTH.

COUNTIES.	PETITIONS RECEIVED.				PETITIONS SITUATED IN —			LAY-OUTS MADE IN —			Number of Lay-outs.
	County.	City.	Town.	Totals.	Cities.	Towns.	Totals.	Cities.	Towns.	Totals.	
Barnstable,	—	—	44	44	—	15	15	—	14	14	94
Berkshire,	15	11	51	77	2	26	28	2	14	16	85
Bristol,	2	6	41	49	2	17	19	1	16	17	84
Dukes,	—	—	5	7	—	5	5	—	5	5	23
Essex,	3	21	56	80	7	25	32	7	17	24	103
Franklin,	1	—	54	55	—	17	17	—	13	13	78
Hampden,	4	4	30	38	3	17	20	1	11	12	74
Hampshire,	1	4	44	49	1	17	18	1	12	13	69
Middlesex,	13	21	92	126	8	42	50	7	32	39	148
Nantucket,	—	—	1	1	—	1	1	—	1	1	12
Norfolk,	2	4	49	55	1	24	25	1	21	22	82
Plymouth,	—	6	59	65	1	24	25	1	19	20	111
Suffolk,	—	2	6	8	2	2	4	2	1	3	7
Worcester,	—	8	139	147	2	54	56	2	43	45	219
Totals,	43	87	671	801	29	286	315	25	219	244	1,189

NUMBER OF PETITIONS RECEIVED, ETC. — *Concluded.*

COUNTIES.	LENGTHS PETITIONED FOR.		LENGTHS LAID OUT.					
			1894-1907		1908.		TOTALS.	
	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.	Feet.	Miles.
Barnstable,	692,667	131.19	420,016	79.55	12,532	2.38	432,548	81.93
Berkshire,	738,787	139.92	264,397	50.07	28,787	5.45	293,184	55.52
Bristol,	762,260	144.37	283,104	53.62	16,623	3.15	299,727	56.77
Dukes,	121,043	22.92	78,501	14.87	4,298	.81	82,799	15.68
Essex,	1,101,410	208.60	278,813	52.81	10,612	2.01	289,425	54.82
Franklin,	593,139	112.34	194,923	36.92	6,625	1.25	201,548	38.17
Hampden,	619,370	117.35	219,478	41.57	24,086	4.56	243,564	46.13
Hampshire,	518,808	98.26	164,303	31.12	13,106	2.48	177,409	33.60
Middlesex,	1,592,927	301.69	518,785	98.25	24,728	4.68	543,513	102.93
Nantucket,	34,185	6.47	34,211	6.48	—	—	34,211	6.48
Norfolk,	692,344	131.13	256,520	48.58	17,052	3.23	273,572	51.81
Plymouth,	1,024,530	194.04	397,028	75.19	19,211	3.64	416,239	78.83
Suffolk,	65,615	12.43	11,644	2.21	7,372	1.40	19,016	3.61
Worcester,	1,811,199	342.84	625,491	118.46	17,724	3.36	643,215	121.82
Totals,	10,368,284	1,963.55	3,747,214	709.70	202,756	38.40	3,949,970	748.10

APPENDIX H.

SHOWING THE WORK DONE UNDER THE "SMALL TOWN" ACT SINCE ITS PASSAGE IN 1900.

[Section 17, Chapter 47, Revised Laws, and Chapter 279, Acts of 1908.]

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	
<i>Barnstable County.</i>							
Eastham,	\$196 00	—	\$196 00	1,150	—	1,150	Graded only.
Mashpee,	—	1 \$400 00	400 00	—	—	—	
Provincetown,	3,857 56	1,238 00	2 5,095 56	7,730	2,200	9,930	Macadam.
Wellfleet,	1,653 00	—	1,653 00	2,250	—	2,250	Broken stone and clay.
<i>Berkshire County.</i>							
Alford,	\$5,706 56	\$1,638 00	\$7,344 56	11,300	2,200	13,330	Gravel.
Egremont,	\$869 00	—	\$869 00	3,363	—	3,363	Gravel.
Florida,	2,396 00	—	2,396 00	5,106	—	5,106	Gravel.
Lanesborough,	2,136 00	\$500 00	2,636 00	3,700	600	4,300	Gravel.
Monterey,	2,502 00	—	2,502 00	4,614	—	4,614	Gravel road and 15-foot steel concrete bridge.
Mount Washington,	1,668 00	3, 4 250 00	1,918 00	9,620	1,100	10,720	Gravel and culverts.
New Ashford,	992 00	400 00	1,392 00	1,000	1,080	2,080	Gravel road and bridge repairs.
New Marlborough,	561 00	—	561 00	2,600	—	2,600	Gravel road and culvert construction and re-pairs.
Otis,	4,328 00	1,000 00	5,328 00	14,850	2,900	17,750	Gravel.
	2,368 00	—	2,368 00	6,200	1,800	8,000	Gravel road and culvert repairs.

Peru,	1,391 00	—	1,391 00	6,105	7 690	6,795	Gravel.
Sandisfield,	4,960 00	900 00	5,860 00	11,858	2,345	14,203	Macadam.
Savoy,	2,980 00	560 00	3,540 00	7,250	1,100	8,350	Gravel.
Sheffield,	4,088 00	1,000 00	5,088 00	8,532	1,500	10,032	Grading and gravel.
Tyringham,	2,165 00	400 00	2,565 00	4,163	500	4,663	Grading and macadam.
Washington,	2,348 00	550 00	2,898 00	5,320	1,000	6,320	Grading and gravel.
West Stockbridge,	3,176 00	900 00	4,076 00	7,950	1,800	9,550	Gravel.
<i>Bristol County.</i>							
Easton,	\$38,928 00	\$6,460 00	\$45,388 00	102,231	16,215	118,446	
Norton,	\$12,000 00	—	² \$12,000 00	26,900	⁶ 4,786	31,686	Macadam.
<i>Essex County.</i>							
Boxford,	\$15,176 00	\$1,000 00	\$16,176 00	34,850	4,786	39,636	Macadam.
Danvers,	\$680 00	\$381 00	² \$1,061 00	5,650	4,280	9,930	Gravel.
Essex,	3,000 00	—	3,000 00	4,000	—	4,000	Gravel.
Georgetown,	832 00	³ 100 00	² 932 00	22,000	—	22,000	Gravel and repairs.
Marblehead,	1,750 00	400 00	² 2,150 00	5,687	⁶ 1,350	7,037	Gravel and macadam.
Middleton,	—	3,800 00	² 3,800 00	—	5,500	5,500	Macadam.
Salisbury,	2,244 00	—	2,244 00	6,700	—	6,700	Gravel.
Swampscott,	1,948 00	—	1,948 00	2,150	—	2,150	Macadam.
Topsfield,	2,984 00	2,925 00	² 2,925 00	—	5,200	5,200	Macadam.
	\$13,438 00	\$8,106 00	\$21,544 00	7,625	⁶ 12,950	20,575	Gravel.
				53,812	29,280	83,092	

¹ Work not yet begun.² Town, of over \$1,000,000 valuation, contributed an equal amount.³ Allotted from "Small Town Contributing Fund," the town contributing an equal amount.⁴ Allotment used for construction of 50 feet of cement masonry culvert.⁵ Built with 1907 allotment.⁶ Built with 1907 and 1908 allotments.⁷ Built with 1906 allotment.

WORK DONE UNDER THE "SMALL TOWN" ACT — Continued.

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	
<i>Franklin County.</i>							
Bernardston,	\$1,265 00	\$400 00	\$1,665 00	¹ 5,800	4,900	10,700	Gravel.
Charlemont,	—	² 1,000 00	³ 1,000 00	—	—	—	Gravel.
Conway,	3,252 00	1,100 00	4,352 00	5,800	2,210	8,010	Gravel.
Gill,	1,912 00	—	1,912 00	5,200	⁴ 1,250	6,450	Gravel road and bridge repairs.
Hawley,	1,397 00	—	1,397 00	4,400	—	4,400	Grading and gravel.
Heath,	1,827 00	400 00	2,227 00	3,511	⁵ 1,472	4,983	Gravel.
Leverett,	2,936 00	⁶ 840 00	3,776 00	7,474	2,133	9,607	Gravel.
Leyden,	2,353 00	440 00	2,793 00	8,600	⁶ 2,100	10,700	Gravel.
Monroe,	1,698 00	⁷ 400 00	2,098 00	3,700	⁴ 550	4,250	Gravel.
New Salem,	2,684 00	468 00	3,152 00	4,080	² —	4,080	Gravel.
Rowe,	1,703 00	470 00	2,173 00	4,600	1,610	6,210	Gravel.
Shutesbury,	1,534 00	⁸ 600 00	2,134 00	5,100	1,500	6,600	Gravel.
Warwick,	2,490 00	730 00	3,220 00	4,450	⁶ 2,000	6,450	Gravel.
Wendell,	3,938 00	550 00	4,488 00	7,200	⁶ 1,850	9,050	Grading and gravel.
	\$28,989 00	\$7,398 00	\$36,387 00	69,915	21,575	91,490	
<i>Hampden County.</i>							
Blandford,	\$3,444 00	—	\$3,444 00	8,400	—	8,400	Grading and gravel.
East Longmeadow,	680 00	—	680 00	2,850	—	2,850	Gravel.
Granville,	4,223 00	—	4,223 00	5,997	⁹ 1,200	7,197	Grading and gravel.

Hampden,	.	.	.	2,508 00	\$500 00	3,008 00	27,100	2,300	29,400	Gravel.
Holland,	.	.	.	164 00	-	164 00	425	-	425	Grading.
Longmeadow,	.	.	.	1,200 00	-	¹⁰ 1,200 00	1,425	-	1,425	Macadam and 128 feet of concrete culvert.
Montgomery,	.	.	.	1,020 00	-	1,020 00	1,750	⁴ 700	2,450	Gravel.
Southwick,	.	.	.	1,928 00	-	1,928 00	5,750	-	5,750	Gravel.
Tolland,	.	.	.	2,042 16	500 00	2,542 16	3,000	1,100	4,100	Grading and 40 feet of concrete culvert.
<i>Hampshire County.</i>										
Amherst,	.	.	.	\$17,209 16	\$1,000 00	\$18,209 16	56,697	5,300	61,997	Macadam.
Chesterfield,	.	.	.	\$1,450 00	\$1,450 00	¹⁰ \$2,900 00	-	⁵ 2,260	2,260	Gravel.
Cummington,	.	.	.	2,720 00	³ 200 00	2,920 00	2,725	⁵ 1,400	4,125	Gravel.
Enfield,	.	.	.	3,083 00	-	3,083 00	7,895	-	7,895	Gravel.
Greenwich,	.	.	.	1,824 00	840 00	2,664 00	5,560	⁵ 12,750	18,310	Gravel.
Middlefield,	.	.	.	976 00	-	976 00	1,200	-	1,200	Gravel.
Pelham,	.	.	.	800 00	460 00	1,260 00	1,800	900	2,700	Gravel.
Plainfield,	.	.	.	1,990 00	² 480 00	2,470 00	1,650	¹¹ 2,050	3,700	Gravel.
Prescott,	.	.	.	1,080 00	400 00	2,380 00	2,713	⁵ 1,153	3,866	Gravel road and underdrains.
Westhampton,	.	.	.	1,750 00	400 00	2,130 00	3,060	600	3,660	Grading and gravel.
Worthington,	.	.	.	2,579 00	480 00	3,059 00	8,893	850	9,743	Gravel.
	.	.	.	3,547 00	780 00	4,327 00	5,950	900	6,850	Gravel.
	.	.	.	\$22,679 00	\$5,490 00	\$28,169 00	41,446	22,863	64,309	

¹ Built with 1906 and 1908 allotments.² Work begun, but not completed.³ Allotted from "Small Town Contributing Fund," the town contributing an equal amount.⁴ Built with 1907 allotment.⁵ Built with 1907 and 1908 allotments.⁶ Includes \$360 allotted from "Small Town Contributing Fund," the town contributing an equal amount.⁷ Work not yet begun.⁸ Includes \$200 allotted from "Small Town Contributing Fund," the town contributing an equal amount.⁹ Built with 1905 and 1906 allotments.¹⁰ Town, of over \$1,000,000 valuation, contributed an equal amount.¹¹ Built with 1903 and 1905 allotments.

WORK DONE UNDER THE "SMALL TOWN ACT" — Continued.

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	
<i>Middlesex County.</i>							
Ayer,	\$3,000 00	\$1,000 00	1 \$4,000 00	8,600	2 9,000	17,600	Gravel.
Belmont,	800 00	1,500 00	1 2,300 00	2,167	3,070	5,237	Macadam.
Billerica,	3,484 00	—	1 3,484 00	4,700	—	4,700	Macadam.
Carlisle,	1,136 00	700 00	1,836 00	5,650	7,500	13,150	Gravel.
Dunstable,	999 00	400 00	1,399 00	2,100	3 6,050	8,150	Gravel.
Hudson,	3,000 00	—	1 3,000 00	10,857	—	10,857	Graded only.
Littleton,	112 00	900 00	1,012 00	442	4,050	4,492	Gravel.
Maynard,	7,883 89	1,500 00	19,383 89	13,433	1,800	15,233	Grading, macadam and bridge repairs.
Pepperell,	1,000 00	—	1 1,000 00	2,550	—	2,550	Gravel.
Reading,	1,132 00	—	1 1,132 00	2,050	—	2,050	Macadam.
Sherborn,	4,058 00	500 00	14,558 00	16,000	3,100	19,100	Gravel.
Shirley,	3,834 00	—	3,834 00	10,350	—	10,350	Gravel.
Stow,	2,505 00	4 640 00	3,145 00	6,800	—	6,800	Gravel.
Wakefield,	5,150 00	—	15,150 00	6,986	—	6,986	Macadam.
Westford,	2,366 30	—	1 2,366 30	5,400	—	5,400	Gravel.
	\$40,460 19	\$7,140 00	\$47,600 19	98,085	34,570	132,655	

Norfolk County.

Avon,	\$2,169 00	\$400 00	\$2,569 00	6,630	\$ 1,205	7,835	Gravel macadam.
Bellingham,	1,412 00	—	1,412 00	2,750	—	2,750	Macadam.
Medfield,	1,040 00	—	1,040 00	720	—	720	Macadam.
Medway,	3,980 00	848 00	14,828 00	9,600	1,656	11,256	Macadam.
Mills,	2,016 00	\$ 1,020 00	3,036 00	3,600	4 —	3,600	Gravel.
	\$10,617 00	\$2,268 00	\$12,885 00	23,300	2,861	26,161	

Plymouth County.

Carver,	\$8,232 00	\$1,858 00	\$10,090 00	26,185	5,009	31,194	Macadam.
East Bridgewater,	4,142 87	—	14,142 87	6,250	—	6,250	Macadam.
Halifax,	1,824 00	7480 00	2,304 00	3,750	\$ 1,525	5,275	Macadam.
Hanover,	2,368 00	—	12,368 00	2,827	—	2,827	Macadam.
Hanson,	6,792 00	1,200 00	17,992 00	20,254	2,730	22,984	Macadam.
Lakeville,	700 00	—	700 00	2,640	—	2,640	Macadam.
Norwell,	2,080 00	—	12,080 00	8,980	—	8,980	Gravel.
Pembroke,	2,848 00	—	2,848 00	20,471	—	20,471	Gravel.
Plympton,	1,817 00	—	1,817 00	12,518	—	12,518	Gravel.
Rochester,	4,500 00	—	4,500 00	19,027	—	19,027	Macadam.
	\$35,303 87	\$3,538 00	\$38,841 87	122,902	9,264	132,166	

¹ Town, of over \$1,000,000 valuation, contributed an equal amount.

² Built with 1906 and 1908 allotments.

³ Built with 1906, 1907 and 1908 allotments.

⁴ Work not yet begun.

⁵ Built with 1907 and 1908 allotments.

⁶ Includes \$500 allotted from "Small Town Contributing Fund," the town contributing an equal amount.

⁷ Allotted from "Small Town Contributing Fund," the town contributing an equal amount.

WORK DONE UNDER THE "SMALL TOWN" ACT --- *Concluded.*

TOWNS.	ALLOTMENTS.			LENGTHS BUILT (FEET).			Types of Roads.
	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	
Worcester County.							
Ashburnham,	\$2,044 00	\$1,100 00	\$3,144 00	3,160	1,590	4,750	Gravel.
Berlin,	2,824 00	400 00	3,224 00	7,025	13,350	10,375	Gravel.
Bolton,	3,124 00	490 00	3,614 00	12,125	17,010	19,135	Gravel.
Boylston,	1,560 00	—	1,560 00	5,100	—	5,100	Gravel.
Brookfield,	900 00	—	900 00	2,500	—	2,500	Macadam.
Dana,	1,299 00	770 00	2,069 00	4,200	1,250	5,450	Gravel.
Hubbardston,	3,085 00	—	3,085 00	6,655	—	6,655	Gravel.
Mendon,	2,964 00	2 500 00	3,464 00	12,925	13,750	16,675	Gravel and repairs.
Oakham,	2,418 00	500 00	2,918 00	7,010	1,200	8,210	Gravel and macadam.
Oxford,	—	800 00	3 800 00	—	3,050	3,050	Gravel.
Petersham,	4,960 00	4 1,000 00	5,960 00	6,135	—	6,135	Gravel.
Rutland,	1,804 00	—	1,804 00	2,581	—	2,581	Gravel and macadam.
Southbridge,	3,200 00	3,200 00	3 6,400 00	—	1 2,293	2,293	Paved with vitrified paving bricks.
Winchendon,	4,000 00	—	3 4,000 00	9,210	—	9,210	Gravel.
	\$34,182 00	\$8,760 00	\$42,942 00	78,626	23,493	102,119	

¹ Built with 1907 and 1908 allotments.² Allotment used for the improvement of 1,700 feet of road, and for the repair of 11,800 feet of road previously improved.³ Town, of over \$1,000,000 valuation, contributed an equal amount.⁴ Work begun, but not completed.

SUMMARY.

COUNTIES.	ALLOTMENTS.			LENGTHS BUILT (FEET).		
	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.	Previous to 1908.	In 1908.	Total to Nov. 30, 1908.
Barnstable,	\$5,706 56	\$1,638 00	\$7,344 56	11,130	2,200	13,330
Berkshire,	38,928 00	6,460 00	45,388 00	102,231	16,215	118,446
Bristol,	15,176 00	1,000 00	16,176 00	34,850	4,786	39,636
Essex,	13,438 00	8,106 00	21,544 00	53,812	29,280	83,092
Franklin,	28,989 00	7,398 00	36,387 00	69,915	21,575	91,490
Hampden,	17,209 16	1,000 00	18,209 16	56,697	5,300	61,997
Hampshire,	22,679 00	5,490 00	28,169 00	41,446	22,863	64,309
Middlesex,	40,460 19	7,140 00	47,600 19	98,085	34,570	132,655
Norfolk,	10,617 00	2,268 00	12,885 00	23,300	2,861	26,161
Plymouth,	35,303 87	3,538 00	38,841 87	122,902	9,264	132,166
Worcester,	34,182 00	8,760 00	42,942 00	78,626	23,493	102,119
Totals,	\$262,688 78	\$52,798 00	\$315,486 78	692,994	172,407	865,401

APPENDIX I.

RELATING TO THE PLANTING AND CARE OF SHADE TREES.
REPORT OF MR. L. H. WORTHLEY, ACTING SUPERINTENDENT FOR
SUPPRESSING THE GYPSY AND BROWN-TAIL MOTHS.

BOSTON, MASS., Dec. 15, 1908.

*Massachusetts Highway Commission, Hon. HAROLD PARKER, Chairman,
15 Ashburton Place, Boston, Mass.*

DEAR SIR:— I submit herewith a brief statement concerning the work done against the moth pests on the State highway trees under the direction of this office during the past year. This work was undertaken at the request of your Board, and we have endeavored to give to it at all times the attention required. While it has added somewhat to the labors of this office, we have been glad to take it up since it so directly contributes to the success of the larger operations against the gypsy and brown-tail moths. It has seemed to us highly important that the trees along our most excellent State highways should be kept free from the moths, to the end that the scattering of caterpillars by dropping on passing vehicles, particularly automobiles, should be reduced to a minimum.

The warm, dry summer of 1908 proved highly favorable to the development of insect pests, particularly the gypsy and brown-tail moths. As a natural result, we find that much more attention to the care of the State highway trees was required than we had anticipated, or would have been necessary in a normal season. During the winter and spring months the work of clearing the trees along the highways from egg clusters of the gypsy moth and winter webs of the brown-tail moth was completed, and a limited amount of thinning and brush cutting was done in certain sections found to be infested.

With the opening of spring it became apparent that extensive spraying operations would be necessary to keep the gypsy moth in check, and also to prevent damage from the elm-leaf beetle,— an

insect pest which was much in evidence during the summer months. In carrying on this line of work nearly all the sections of the State highway where thinning of trees and cleaning operations had been done previously were thoroughly sprayed with arsenate of lead, with entirely satisfactory results. In several sections it was necessary to burlap the trees in order to destroy the large caterpillars which swarmed in from adjoining infested localities. At Barnstable and Sandwich, where but few gypsy moths were found, the appearance of the elm-leaf beetle in force necessitated quite extensive spraying operations.

The results of the summer's work were quite gratifying to this office, as we trust they were to your Board, since but very few State highway trees were injured either by the moth pests or by the beetle in the districts where these operations were carried on. In the fall months the sprout growth, which had sprung up in places where the trees had been previously thinned, was cut over, and after the leaves had fallen the work of clearing the trees of egg clusters and nests was begun. At this writing about 65 per cent. of this latter work has been completed. The fall inspection shows a great improvement in the condition of the trees as regards the moths over that of 1907.

Nearly all the work necessary on the State highway trees has been done by the local gypsy moth organizations of the cities and towns, which have now reached, as a whole, a high degree of efficiency. In a few places it has seemed desirable to have the necessary work done by responsible contractors, who were also employed on certain emergency work in connection with the elm-leaf beetle.

Particular mention should be made of the valuable assistance given your Board and this office in connection with this work by the forces of the United States Department of Agriculture, under the direction of Field Agent D. M. Rogers, who has co-operated most heartily in the work of thinning out certain badly infested sections, and in the spraying operations, without expense to your Board or to this department.

Since the State highway trees are particularly liable to reinfestation from caterpillars dropped by passing automobiles and other vehicles, it will be necessary for some time to keep them under constant surveillance. There will doubtless be discovered from time to time additional infested localities, where thinning operations will be necessary, while the possible damage from the elm-leaf beetle the coming year is an unknown quantity, — conditions which you may

think best to consider when making an estimate of the probable cost of this work for 1909. I append herewith a list of towns in which work has been done against insect pests on State highway trees, together with the amounts expended in each.

Amount of Bills approved by this Office and paid by the Massachusetts Highway Commission for Work done on the State Highways in the Following Towns.

Acton,	\$601 63	Needham,	\$63 38
Amesbury,	29 30	Newbury,	27 50
Andover,	92 52	Newburyport,	34 88
Ashland,	43 00	North Andover,	66 00
Barnstable,	118 25	Northborough,	11 00
Bedford,	173 45	Orleans,	5 75
Beverly,	409 51	Quincy,	20 00
Bourne,	41 00	Reading,	75 36
Boxborough,	195 25	Rockland,	174 78
Brewster,	27 85	Rowley,	28 50
Chatham,	5 00	Salisbury,	5 00
Chelmsford,	51 00	Sandwich,	147 47
Cohasset,	87 86	Scituate,	10 50
Concord,	123 91	Southborough,	71 63
Dennis,	8 10	Stoneham,	198 62
Dover,	80 50	Sudbury,	466 22
Dracut,	207 70	Swampscott,	19 60
Duxbury,	10 00	Tewksbury,	140 14
Falmouth,	10 75	Townsend,	39 25
Framingham,	44 00	Truro,	3 00
Gloucester,	72 50	Watertown,	9 50
Groton,	38 50	Wayland,	27 00
Groveland,	95 13	Wellesley,	3 06
Hamilton,	146 60	Wellfleet,	3 57
Harvard,	16 40	Wenham,	258 02
Hingham,	62 80	West Newbury,	231 25
Hudson,	29 25	Westborough,	20 00
Ipswich,	19 00	Westford,	104 75
Leominster,	7 00	Weston,	179 00
Littleton,	36 13	Weymouth,	259 35
Marlborough,	193 87	Winchester,	187 85
Melrose,	55 24	Yarmouth,	334 48
Merrimac,	46 90		
Methuen,	106 36		
Natick,	54 45	Total,	\$6,567 12

Respectfully submitted,

L. H. WORTHLEY,
Acting Superintendent.

REPORT OF FORESTER.

CLINTON, MASS., Dec. 5, 1908.

To the Massachusetts Highway Commission.

GENTLEMEN:—Another season with less than the normal rainfall has necessitated careful attention being given to the care of the trees, particularly those that have been planted but a short time. The eastern part of the State has seemingly had less rainfall than the western part, and as the soil in the latter is of a heavier nature these trees have not been affected.

During the spring there were planted 1,184 trees, with a loss of 6 per cent. This loss was confined to two varieties and was due to the very dry weather. Among the 11,929 trees previously planted 744 were replaced. Preparations were made for planting 733 trees this fall, but owing to the very dry condition of the soil the planting was deferred until next spring.

Little work has been done in regard to thinning the native growth, as the funds at our disposal did not permit. This feature of the work will always be one that should receive attention. In some cases the transplanting of the smaller native trees can be made to advantage.

The planting of sumach in the cut at Montague was very successful. It will soon serve its purpose of keeping the slopes in place, and of gathering material that will add fertility to the soil.

The planting of hog cranberries on the slope in Brewster and Chatham has not yet developed. Another season will probably show better results.

A number of trees have been injured this year by horses and automobiles, but the public generally appreciate the value of the trees and are interested in their welfare.

The trees in the nursery have made a good root growth, although the tops have not developed as much as they would had the weather conditions been favorable. They have received the best of care and the loss has been small. The cuttings of willows put in two years ago are now large enough to plant. The ash seedlings set out last spring show a variation of growth; after another season the larger ones can be used in some of the planting.

As soon as we are able to increase our stock of trees in the nursery, so that all trees planted on the roadside are grown there at least a year, the percentage of loss will decrease. In fact, all the losses

this year have been due either to unusual conditions or injuries caused by careless boys and teamsters.

New trees planted in 1908,	1,184
Total trees planted in the five years,	13,113
Trees replaced in 1908,	744
Trees on hand in nursery,	2,811
Small trees on hand in nursery,	2,594
Number of towns in which trees have been planted,	55
Number of towns in which native growth has been trimmed,	3

The cost of planting new trees in 1908 was \$1.29 each. The cost of maintenance this year was \$0.20 per tree. Ground has been prepared for 733 trees at an expense of \$0.49 each.

Respectfully submitted,

E. W. BREED.

SHOWING THE VARIETIES AND DISTRIBUTION OF SHADE TREES PLANTED IN 1908.
Replaced.

CITY OR TOWN.	American Elm.	Norway Maple.	Sugar Maple.	White Maple.	Ash-leaf Maple.	White Ash.	Green Ash.	Russian Willow.	Laurel leaf Willow.	Black Locust.	Oriental Plane.	White Poplar.	Totals.
Adams, .	1	-	6	2	-	1	-	-	-	-	-	-	1
Andover, .	2	10	4	8	-	37	-	-	-	-	-	-	11
Ashby, .	1	-	-	-	-	8	-	5	-	-	-	-	60
Athol, .	8	2	-	12	-	6	-	-	-	-	-	-	21
Auburn, .	12	17	-	-	-	4	4	2	-	-	-	-	20
Brewster, .	3	1	-	-	1	9	-	-	-	2	-	-	39
Chatham, .	10	7	-	-	-	-	-	-	-	-	-	-	16
Dennis, .	3	15	1	3	-	-	32	1	1	-	-	-	49
Fitchburg (north), .	22	50	-	-	-	-	-	3	-	-	-	-	24
Gardner, .	-	2	-	-	-	30	-	-	-	-	-	-	55
Hancock, .	-	-	-	-	-	2	-	-	-	-	-	-	50
Natick, .	4	-	-	-	-	17	-	10	-	-	4	-	31
North Reading, .	-	-	-	-	-	9	-	-	1	-	-	-	10
Norfolk, .	11	-	-	-	-	-	-	-	-	-	-	-	11
Norwood, .	8	-	-	-	-	-	-	-	-	-	-	-	8
Orange, .	-	66	-	3	-	-	-	1	-	-	-	-	70
Pittsfield (west), .	-	8	-	-	-	-	-	-	-	-	-	-	12
Reading (north), .	1	-	-	-	-	3	-	-	-	-	-	-	11
Reading (south), .	2	31	9	5	-	-	-	10	-	-	-	-	53
Richmond, .	-	-	7	-	-	-	-	-	-	-	-	-	4
Stoneham (north), .	3	-	-	-	-	1	-	-	-	-	-	-	3
Stoneham (south), .	-	-	-	-	-	-	-	-	-	-	-	-	3
Templeton, .	13	12	-	-	-	-	-	-	-	-	-	-	12
Townsend, .	2	3	2	3	-	10	-	-	-	-	-	-	28
Walpole (north), .	2	3	1	-	-	17	-	1	-	-	-	-	24
Walpole (south), .	-	-	-	-	-	1	-	-	-	-	-	-	3
Wellesley, .	-	2	-	-	-	3	-	-	-	-	-	-	5
Westfield, .	21	-	25	21	-	-	-	-	-	-	-	-	67
Westminster, .	10	14	-	1	-	-	-	-	-	-	-	-	25
Westwood, .	1	8	1	-	-	-	-	-	-	-	-	-	9
Wrentham, .	1	-	-	-	-	-	-	-	-	-	-	-	2
Yarmouth (north), .	1	-	-	-	-	-	-	-	-	-	-	1	2
Totals, .	145	248	56	58	1	158	36	33	2	2	4	1	744

SHOWING THE VARIETIES AND DISTRIBUTION OF SHADE TREES PLANTED IN 1908 — *Concluded.*
New Planting.

City or Town.	American Elm.	Norway Maple.	Sugar Maple.	White Maple.	White Ash.	Ash-leaf Maple.	Laurel-leaf Willow.	Russian Willow.	American Linden.	Oriental Plane.	Totals.
Chelmsford,	29	-	-	-	45	-	-	-	-	-	74
Hyannis,	17	-	-	-	-	-	-	-	-	-	17
Lowell (north),	115	-	-	24	-	-	-	17	-	-	156
Lowell (south),	19	35	8	74	15	-	-	-	-	-	151
Oxford,	19	-	-	-	16	-	19	22	-	-	76
Tyngsborough,	83	-	-	8	150	-	-	-	78	-	319
Yarmouth (south),	120	54	-	-	-	102	-	4	-	111	391
Totals,	402	89	8	106	226	102	19	43	78	111	1,184

On hand in nursery: American elms, 681; Scotch elms, 123; Norway maples, 416; sugar maples, 279; white maples, 13; white ash, 242; English ash, 346; green ash, 71; scarlet oaks, 85; red oaks, 27; tulip, 70; American linden, 65; laurel-leaf willows, 101; Russian willows, 159; black locusts, 26; miscellaneous, 107; total, 2,811.

Small trees: white maples, 97; pin oaks, 134; white ash, 2,363; total, 2,594.

APPENDIX J.

RELATING TO THE WORK OF THE AUTOMOBILE DEPARTMENT.

Showing the Number of Registration Certificates and Licenses to operate issued during the Fiscal Year 1908; also the Fees received for the Same, together with the Fees for Examinations of Professional Chauffeurs and for Copies of Certificates of Registration and Licenses.

Re-registration, December, 1907:—

Automobiles,	14 at \$5 00	\$70 00
Motor cycles,	5 at 2 00	10 00
Manufacturers or dealers,	2 at 15 00	30 00

Registration, 1908:—

Automobiles,	18,052 at 5 00	90,260 00
Motor cycles,	1,917 at 2 00	3,834 00
Manufacturers or dealers,	379 at 15 00	5,685 00

Licenses to operate:—

Private operators,	5,865 at 2 00	11,730 00
Professional chauffeurs,	2,343 at 2 00	4,686 00
Renewals,	4,962 at 50	2,481 00

Examinations,	1,215 at 2 00	2,430 00
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Copies of certificates and licenses furnished,	545 at 50	272 50
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\$121,488 50

Under the provision of chapter 648, section 8, Acts of 1908, one private operator's license and two registration certificates were issued (without fees) to members of the diplomatic corps.

Dec. 28, 1908.

Analysis of the Abstracts of Court Records for the Year 1908.

Whole number of abstracts received,	2,570
Persons convicted of unlawful automobiling,	2,360
Number of appeals taken to a higher court,	161
Persons found not guilty,	102
Complaints placed on file,	249
Complaints nol-prossed,	44
Defendants defaulted,	2
Convictions :—	
For overspeeding,	1,491
For reckless operating,	39

For operating while intoxicated,	9
For improper display or lack of register numbers,	116
For operating without carrying license,	303
For operating without carrying registration certificate,	101
For operating an unregistered motor vehicle,	36
For refusing to stop when signaled by officer,	54
For operating with unlighted lamps,	53
For operating without numbers on lamps,	107
For violation of park rules,	262
For miscellaneous offences,	107
Total amount of fines reported to have been paid on account of improper automobiling,	\$26,148 85

REPORT OF EXAMINERS AND INVESTIGATORS.

AUSTIN B. FLETCHER, *Secretary, Massachusetts Highway Commission.*

DEAR SIR:—In compliance with your instructions, the examiners of chauffeurs submit under the following subheads their second annual report, together with statistical tables, covering the period from Dec. 1, 1907, to Dec. 1, 1908.

EXAMINATIONS.

Examinations have been held regularly, either every week or fortnight, in ten cities of the Commonwealth; namely, Boston, Brockton, Fall River, Fitchburg, Lowell, New Bedford, Pittsfield, Salem, Springfield and Worcester. Special examinations have been held also in the following places: Greenfield, Lawrence, Providence and Topsfield. The examinations held in Boston have for the most part been conducted by F. L. Austin; those in Fitchburg, Brockton, New Bedford, Fall River, Lowell and Salem by C. G. Hubbell; those in Pittsfield, Springfield and Worcester by A. F. Foote.

The methods of examining applicants for licenses to operate motor vehicles have been characterized during the past year by greater strictness. The examination has consisted, as before, of a written examination and a road test. A new examination paper, comprising twenty-five questions, nine of which related to the mechanism and control of a gasoline motor vehicle, was introduced early in the year, with good results. It was found that certain of the applicants learned their answers to the questions by rote, but this disadvantage it is expected will be overcome by varying the examination papers from time to time.

As the statistics appended to this report show, the road test has

been made more strict than that of last year. The standard of fitness has been raised. This may account for the elimination of certain undesirable elements among the auto schools, notably in Boston and Worcester. It will be observed by glancing at the statistics that there has been a large increase in the number of examinations. During the eight months of 1907 (April to November, inclusive), 1,332 persons were examined. During the corresponding period in 1908, 2,208 persons took the examination. And for the twelve months of the fiscal year just closed the total number of persons examined was no less than 2,666, or more than twice as many in 1908 as in 1907. The total number of examinations required was 3,290. Of the total number of applicants, 527 required a second examination, 79 a third, 15 a fourth, 2 a fifth, and 1 was examined six times before he was granted a license; making a total of 624 re-examined.

The percentage of failures also was much larger during 1908. Last year, on their first examination, 12.6 per cent. failed; this year, on the same examination, 27.6 per cent. of the applicants failed. Last year, on their final examination, 8.2 per cent. failed to secure a license; this year 10.7 per cent. failed finally. In other words, out of every hundred applicants more than ten, after one or more tests, gave up entirely, for the present year at least, their intention of obtaining a license to operate.

TABULATION OF ACCIDENTS.

Beginning in July, 1908, a daily record has been kept of automobile collisions and accidents, based on information contained in clippings received from the New England Newspaper Bureau. This tabulation of collisions and accidents is intended to show with what objects motor vehicles most frequently collide; also whether more accidents occur in the day or night time, whether in the city or country; also how many occupants of automobiles and carriages, how many pedestrians, bicycle riders and street car passengers were killed or injured. The totals for five months, July 10 to Dec. 1, 1908, are shown in the schedule annexed herewith.

Newspaper clippings, covering 670 cases and giving accounts of accidents, have been analyzed, filed and the information tabulated. The names of participants in such accidents have been catalogued, and the accidents themselves have been classified according to locality.

INVESTIGATIONS.

The work of the investigators was begun in July with the appointment of Messrs. Paul H. Weinert and Alfred F. Foote. Since July 30, 1908, Mr. Weinert has investigated 34 automobile accidents and complaints which have been received by the commission. Since Aug. 19, 1908, Mr. Foote, who has conducted the examination of chauffeurs besides investigating accidents in the western part of the State, has reported on 25 accident cases. This includes also three prosecutions in court and the securing of convictions of violators of the automobile law. The reports of the investigators are based on carefully prepared data, obtained first hand on the scenes of accidents, and on the signed statements of witnesses. After they have been submitted to the commission, these reports, together with all papers relating thereto, are filed in a way convenient for reference.

Respectfully submitted,

F. L. AUSTIN,

Chief Examiner.

Boston, Dec. 16, 1908.

TABLE A. — Showing the Number of Examinations, by Months, of Applicants for Licenses.

MONTH.	FIRST EXAMINATION.				SECOND EXAMINATION.				THIRD EXAMINATION.				FOURTH EXAMINATION.			
	Passed.	FAILED.		Per Cent Failed.	Passed.	FAILED.		Passed.	Passed.	FAILED.		Passed.	Passed.	FAILED.		Passed.
		Part I.	Part II.			Part I.	Part II.			Part I.	Part II.			Part I.	Part II.	
December,	62	3	19	26.19	4	—	4	—	2	—	1	—	—	—	—	—
January,	72	5	13	20.00	7	—	4	—	—	—	1	—	—	—	—	—
February,	89	8	13	19.09	4	—	2	—	—	—	1	—	—	—	—	—
March,	119	9	40	29.16	19	—	6	—	1	—	1	—	—	—	1	—
April,	166	49	55	38.51	29	1	11	—	4	—	—	—	—	—	—	—
May,	256	54	48	28.49	53	8	12	—	—	—	—	—	—	—	1	—
June,	265	36	50	24.50	62	6	10	—	6	2	3	1	—	—	—	—
July,	298	32	58	23.19	44	6	14	—	7	1	2	—	—	—	—	—
August,	208	33	28	22.67	41	9	5	—	9	1	2	—	—	—	—	—
September,	194	23	37	23.62	46	7	12	—	13	2	3	—	—	1	1	—
October,	121	26	52	39.19	39	2	11	—	3	2	3	—	—	—	2	—
November,	86	22	17	31.20	36	2	11	—	5	1	3	—	—	—	1	—
Totals,	1,936	300	430	27.38	384	41	102	—	50	9	20	—	—	8	1	6

TABLE A. — Showing the Number of Examinations, by Months, of Applicants for Licenses. — Concluded.

MONTH.			FIFTH EXAMINATION.				SIXTH EXAMINATION.				Totals.	Passed.	Failed.	Total Per Cent Failed.
			Passed.	FAILED.		Passed.	FAILED.							
				Part I.	Part II.		Part I.	Part II.						
December.	—	—	—	—	—	95	68	27	28.4	
January.	—	—	—	—	—	102	79	23	22.5	
February.	—	—	—	—	—	117	93	24	20.5	
March.	—	1	—	—	—	197	139	58	29.4	
April.	—	—	—	1	—	316	200	116	36.7	
May.	—	—	—	—	—	432	309	123	28.4	
June.	—	—	—	—	—	441	334	107	24.2	
July.	—	—	—	—	—	463	350	113	24.4	
August.	—	—	—	—	—	336	258	78	23.2	
September.	—	—	1	—	—	342	255	87	25.4	
October.	—	—	—	—	—	264	166	98	37.1	
November.	—	—	—	—	—	185	128	57	30.8	
Totals.	—	1	1	1	—	3,290	2,379	911	27.6	

Summary.

Total number of examinations, .	3,290	Total number of persons failed, .	911	287
Total number of re-examinations, .	624	Total per cent. failed, .	27.6	10.76
Total number of persons examinedd, .	2,666	Total number failed on first examination, .	730	730
Total number of persons passed, .	2,379	Total per cent. failed on first examination, .	27.38	27.38

TABLE B. — Showing the Number of Examinations, by Localities, of Applicants for Licenses.

CITY OR TOWN.	Decem-ber.	Janu-ary.	Febru-ary.	March.	April.	May.	June.	July.	August.	Septem-ber.	Octo-ber.	Novem-ber.	Totals.	Per Cent.	Passed.	Failed.	Per Cent. failed.
Boston, .	67	88	94	154	216	246	258	215	163	187	147	118	1,953	59.30	1,353	600	30.72
Brockton, .	6	1	-	2	10	18	19	30	9	16	15	2	128	3.89	96	32	25.00
Fall River, .	-	-	-	-	-	9	14	19	24	25	19	15	125	3.79	103	22	17.60
Fitchburg, .	2	-	-	1	2	7	13	5	10	3	2	7	52	1.58	41	11	21.15
Greenfield, .	-	-	-	-	-	-	-	-	-	-	1	1	2	.06	2	-	-
Lawrence, .	-	-	-	-	-	-	-	1	-	-	-	-	1	.03	1	-	-
Lowell, .	1	1	4	3	3	11	8	11	5	4	1	2	54	1.64	50	4	7.40
New Bedford, .	2	1	3	4	20	12	9	21	17	21	18	5	133	4.04	109	25	18.80
Pittsfield, .	2	-	5	5	16	21	15	20	19	10	3	6	122	3.70	98	24	19.67
Providence, R. I., .	-	-	-	-	-	-	-	20	11	-	-	-	31	.94	30	1	3.22
Salem, .	2	1	1	1	8	39	43	57	29	17	10	5	213	6.47	167	45	21.12
Springfield, .	6	5	6	24	26	35	35	25	22	31	30	10	255	7.75	170	85	33.33
Topsfield, .	-	-	-	-	-	-	-	-	1	-	-	1	2	.06	2	-	-
Worcester, .	7	5	4	3	15	34	27	39	26	28	18	13	219	6.65	157	62	28.31
Totals, .	95	102	117	197	316	432	441	463	336	342	264	185	3,290	-	2,379	911	27.69

Schedule of Automobile Collisions, July 10 to Dec. 1, 1908.

MONTH.	PEDESTRIANS.		AUTOS.		CARRIAGE, CART, ETC.		BICYCLE.		TROLLEY CAR.		POLE, POST, TREE, ETC.		TRAIN.		OCCUPANTS OF AUTOS.			
	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	KILLED.		INJURED.	
															Day.	Night.	Day.	Night.
July, .	9	13	8	1	12	11	3	6	4	2	15	10	-	-	-	-	14	7
August, .	26	17	6	1	24	16	13	1	8	4	15	14	-	-	-	-	8	17
September, .	22	11	8	3	22	22	14	3	10	3	14	8	-	-	1	1	28	20
October, .	31	11	6	4	20	11	5	2	6	5	23	13	-	-	1	1	15	22
November, .	18	8	4	2	17	13	2	1	2	5	11	7	-	-	1	1	15	19
Totals, .	106	60	32	11	95	73	37	13	30	19	78	52	1	1	2	2	80	85

Schedule of Automobile Collisions, July 10 to Dec. 1, 1908 — Continued.

MONTH.	PEDESTRIANS.				BICYCLE RIDERS.				OCCUPANTS OF CARRIAGES.				STREET CAR PASSENGERS.				CITY.				COUNTRY.	
	KILLED.		INJURED.		KILLED.		INJURED.		KILLED.		INJURED.		KILLED.		INJURED.		KILLED.		INJURED.		KILLED.	
	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.	Day.	Night.
July.	1	1	12	13	-	-	3	5	-	-	-	8	9	-	1	-	26	30	26	13	25	13
August.	1	2	24	14	-	-	15	1	-	-	-	11	13	-	-	2	57	27	38	26	36	26
September.	2	1	19	10	-	-	19	3	-	-	-	12	13	-	2	-	45	26	45	24	45	24
October.	-	-	30	11	-	-	5	3	-	-	-	14	8	-	-	-	76	30	26	15	15	16
November.	-	1	16	6	-	-	2	1	-	-	-	10	14	-	-	-	48	28	48	6	8	8
Totals.	4	5	101	54	-	-	34	13	-	-	-	55	59	-	3	2	252	141	252	87	127	87

*Schedule of Automobile Collisions, July 10 to Dec. 1, 1908 — Concluded.**Summary.*

Total number killed,	13	Total number injured,	486	Total number of collisions,	607	Collisions in day time,	379
Occupants of autos,	4	Occupants of autos,	165	With pedestrians,	166	Collisions after dark,	228
Pedestrians,	9	Pedestrians,	155	With other autos,	43	Collisions on country roads,	214
Bicycle riders,	-	Bicycle riders,	47	With carriage, cart, etc.,	168	Collisions on city or town streets,	393
Occupants of carriages,	-	Occupants of carriages,	114	With bicycle,	50		
Street car passengers,	-	Street car passengers,	5	With trolley car,	49		
				With pole, post, tree, etc.,	130		
				With train,	1		

SHOWING CERTAIN STATISTICS PREVIOUSLY REFERRED TO CONCERN-
ING FEES, COSTS FOR LIABILITY INSURANCE, TIRES, ETC.

TABLE A. — *Cost per Mile for Registration Fees, at 50 Cents per Horse Power, based on 3,500 Miles traveled and on 5,000 Miles.*

CLASS.	Horse Power.	Number of Cars.	Fee.	Amount.	3,500 Miles. Cost per Mile.	5,000 Miles. Cost per Mile.
A, . . .	10 or under	396	\$5	\$1,980	\$0 0014	\$0 001
B, . . .	20	573	10	5,730	0029	002
C, . . .	30	458	15	6,870	0043	003
D, . . .	40	227	20	4,540	0057	004
E, . . .	50	113	25	2,825	0072	005
F, . . .	Over 50	33	30	990	0086	006
Totals, .	—	1,800	—	\$22,935	—	—

Average fee, \$12.74+

TABLE B. — *Cost per Mile for Liability Insurance, based on 3,500 Miles traveled and on 5,000 Miles.*

CLASS.	Horse Power.	Number of Cars.	Liability Insurance.	Amount.	3,500 Miles. Cost per Mile.	5,000 Miles. Cost per Mile.
A, . . .	10 or under	396	\$32	\$12,672	\$0 0091	\$0 0064
B, . . .	20	573	40	22,920	0114	0080
C, . . .	30	458	60	27,480	0171	0120
D, . . .	40	227	80	18,160	0228	0160
E, . . .	50	113	100	11,300	0286	0200
F, . . .	Over 50	33	120	3,960	0343	0240
Totals, .	—	1,800	—	\$96,492	—	—

TABLE C. — *Cost per Mile for Tires and Tubes, based on 3,500 Miles traveled and on 5,000 Miles.*

CLASS.	Horse Power.	Number of Cars.	TIRES AND TUBES (SET).		Amount.	3,500 Miles. Cost per Mile.	5,000 Miles. Cost per Mile.
			Size (Inches).	Price (Net).			
A, . . .	10 or under	396	30 x 3	\$71 44	\$28,290 24	\$0 0204	\$0 0143
B, . . .	20	573	32 x 3.5	109 82	62,926 86	0314	0220
C, . . .	30	458	34 x 4	157 32	72,050 56	0450	0315
D, . . .	40	227	34 x 4.5	198 55	45,070 85	0567	0397
E, . . .	50	113	34 x 5	243 00	27,459 00	0694	0486
F, . . .	Over 50	33	36 x 5	256 69	8,470 77	0733	0513
Totals, .	—	1,800	—	—	\$244,268 28	—	—

TABLE D. — *Cost per Mile compared, of Registration Fees, at 50 Cents per Horse-power, Liability Insurance and Tires and Tubes, based on 3,500 Miles traveled.*

CLASS.	Horse Power.	Registration Fees (per Mile).	Liability Insurance (per Mile).	Tires and Tubes (per Mile).
A,	10 or under	\$0 0014	\$0 0091	\$0 0204
B,	20	0029	0114	0314
C,	30	0043	0171	0450
D,	40	0057	0228	0567
E,	50	0072	0286	0694
F,	Over 50	0086	0343	0733

APPENDIX K.

APPROPRIATIONS.

Appropriations for the Construction and Repair of State Highways.

1894, chapter 497, section 8,	\$300,000 00
1895, chapter 347, section 3,	400,000 00
1896, chapter 481, section 3,	600,000 00
1897, chapter 340, section 1,	800,000 00
1898, chapter 539, section 1,	400,000 00
1899, chapter 396, section 1,	500,000 00
1900, chapter 442, section 1,	500,000 00
1901, chapter 269, section 1,	500,000 00
1902, chapter 246, section 1,	500,000 00
1903, chapter 280, section 1,	¹ 2,250,000 00
1907, chapter 446, section 1,	² 2,500,000 00
	<hr/>
	\$9,250,000 00

Appropriations for the Salaries and Expenses of the Commission, paid from the Treasury of the Commonwealth.

1898, chapter 497, section 1,	\$14,300 00
1899, chapter 367, section 1,	28,500 00
1900, chapter 141, section 1,	28,500 00
1901, chapter 451, section 1,	33,750 00
1902, chapter 67, section 1,	33,750 00
1903, chapters 14 and 485, section 1,	² 43,950 00
1904, chapters 19 and 461, section 1,	² 39,300 00
1905, chapters 36, 431 and 480, section 1,	² 46,150 00
1906, chapters 36 and 140, section 1,	² 49,514 14
1907, chapter 157, section 1,	³ 66,950 00
1908, chapter 212, section 1,	³ 76,300 00

Appropriations for Maintenance, paid from the Treasury of the Commonwealth.

1903, chapter 280, section 2,	\$40,000 00
1904, chapter 316, section 1,	50,000 00
1905, chapter 36, section 1,	60,000 00
1906, chapter 36, section 1,	64,166 66
1907, chapter 157, section 1,	100,000 00
1908, chapter 212, section 1,	100,000 00
1908, chapter 657, section 1,	50,000 00

¹ To cover expenses of construction for a period of five years.² Includes expenses of automobile department.³ Includes expenses of moth suppression and of automobile department in part.

PART II.

THIRD ANNUAL REPORT

OF THE

MASSACHUSETTS HIGHWAY COMMISSION,

FOR THE

FISCAL YEAR ENDING NOVEMBER 30, 1908,

ON

COMPANIES ENGAGED IN THE TRANSMISSION OF
INTELLIGENCE BY ELECTRICITY.

CHAPTER 433, ACTS OF 1906.

ANNUAL REPORT OF THE MASSACHUSETTS HIGHWAY COMMISSION CONCERNING COMPANIES ENGAGED IN THE TRANS- MISSION OF INTELLIGENCE BY ELEC- TRICITY.

During the fiscal year 1908, while the duties of the commission itself were not so exacting as in the previous year, for reasons which will appear later, much work was actually accomplished.

Many conferences were held at the office of the commission, between certain subscribers and the officials of the New England Telephone and Telegraph Company, relating to complaints of a minor nature. The discussions in some cases concerned rates and changes in contracts, and in others related to questions of service; in nearly every instance the troubles were adjusted to the apparent satisfaction of all parties.

The law (chapter 433 of the Acts of 1906) makes no provision for such conferences, and the commission has acted in such cases only semiofficially, but it believes that much good has been accomplished thereby. Many times a clear explanation by the representatives of the company of the facts in the particular case has sufficed.

DISCRIMINATING TELEPHONE RATES.

Several complaints have come before the commission to the effect that the New England Telephone and Telegraph Company is refusing to continue an existing rate to particular subscribers who had been receiving peculiar privileges or rates different from the ordinary rates in force in the particular locality, sometimes from one cause and sometimes from another; often because, when the telephones were installed orig-

inally, during the canvass for subscribers, the telephone company made unusually low rates.

At one of the hearings involving this particular point the commission informed the company that it seemed desirable for the company to discontinue, as soon as possible, all discriminating irregular and preferential rates which gave special privileges to particular subscribers as distinguished from terms and rates open to any one in the same locality for service of the same character. The commission understands that the company has carried out this principle so far as possible during the past year.

ANNUAL RETURNS.

Under the law every company engaged in the transmission of intelligence by electricity is required to submit annually a report of its doings to the commission, on or before the first day of October. The commission, under authority of this act, has fixed June 30 as the date to which such returns shall be made each year.

The returns for the year ending June 30, 1908, were received much more promptly than was the case in 1907, presumably because the companies had had one year's experience in making up the forms. It should also be stated that the returns for 1908 appear to be much more accurate and complete than those of the first year.

In one case, however, because of certain imperfections which the company failed to correct after its attention had been called to them by the commission, the matter was referred to the Attorney-General. The Supreme Court has summoned the officials of this company to appear before it to answer to the complaint of the commission in this matter.

In the abstracts of the annual returns, which appear in Appendix B, the same division of the telephone companies into two groups which was adopted last year has been followed, the first comprising those companies with 100 subscribers or more; the second including those with less than 100 subscribers.

INVESTIGATION OF THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY CONCERNING ITS RATES FOR SERVICE, ETC.

In the year 1907, acting on petitions of certain subscribers of the New England Telephone and Telegraph Company asking for a reduction in toll charges from the several suburban exchanges to the metropolitan exchanges, and also upon a petition signed by a number of business concerns of Boston, headed by the "Post" Publishing Company, and commonly called the Boston "Post" petition, which alleged that the charges for telephone service of the telephone company in, to and from the city of Boston were excessive, and that the quality of the service furnished was unsatisfactory and defective, many hearings, covering a long period, were given by the commission. Full copies of the petitions and the signatures of the petitioners will be found in the report of the commission dated January, 1908.

In September, 1907, by agreement of all parties, Mr. George Albree, a minority stockholder, was appointed an agent of the commission, with authority to examine the records, accounts and vouchers of the company for the years 1904 and 1905, and the company was requested to produce such records, etc., as Mr. Albree should require.

It was thought that the series of hearings, which had seemed likely to continue indefinitely, might be closed, and that much information which could be only brought out at the public hearings with the greatest difficulty and tedium might, by this means, be presented in condensed form.

REPORT OF MR. GEORGE ALBREE.

Although Mr. Albree began his investigation in October, and notwithstanding the fact that the company gave him every possible assistance, and put no obstacles in his way, because of the magnitude of the task he was unable to make his report to the commission until Dec. 10, 1907.

Since the fiscal year of the Commonwealth ends on November 30, it was not possible to include his report in the annual

report for 1907, and a number of copies thereof were printed in pamphlet form, some of which are still available for distribution. Because of its length, Mr. Albree's report is not reprinted here.

CLOSING OF HEARINGS.

On Jan. 9, 1908, the public hearings on the petitions were resumed, Edmund A. Whitman, Esq., appearing as attorney for the "Post" Publishing Company, Stoughton Bell, Esq., as attorney for the Co-operative Telephone Reform Association (suburban subscribers), George Fred Williams, Esq., as counsel for Mr. George Albree, and Samuel L. Powers, Esq., and Robert M. Morse, Esq., as attorneys for the New England Telephone and Telegraph Company.

Various exhibits were submitted by the petitioners and by the company, and on this and the following day the commission listened to the arguments of the attorneys.

On January 10, at 1 o'clock P.M., the public hearings were closed.

REPORT OF DUGALD C. JACKSON, C.E.

Immediately after the close of the public hearings the commission entered into negotiations with Dugald C. Jackson, C.E., who appeared to be acceptable to all parties interested, with a view to securing his assistance in determining certain questions which had arisen during the course of the hearings, and within a few days the following letter was written to Professor Jackson:—

DEAR SIR:—Pursuant to the talk which you had with the commissioners at this office on Friday, January 17, I am directed by the commissioners to state that they have decided to retain you to assist them in arriving at conclusions on the following questions growing out of their investigation of the affairs of the New England Telephone and Telegraph Company:—

1. Is an appraisal of the plant of the New England Telephone and Telegraph Company necessary before any satisfactory solution can be had of the general problem of what should be the equitable rates for service of said company throughout its Massachusetts territory, and, if so, how should such inventory and appraisal be made, and what would be the probable cost of the same?

2. Without prejudice to the general problem of what should be the equitable rates for service of the New England Telephone and Tele-

graph Company throughout its Massachusetts territory, and in the absence of a complete inventory and appraisal of the plant of said company, is it possible to reduce the toll rates now in force in the Boston and suburban division for toll business into and out from the so-called metropolitan exchanges, and if such a reduction may be so made upon what basis should it be effected?

3. With the same premises as stated in question 2, in order to improve the quality of the service given by the New England Telephone and Telegraph Company, is it possible and is it advisable to change at the present time the multi-party lines in the Boston and suburban division to lines having not more than two subscribers thereon, with the so-called "divided ringing" appliances?

The commission would like a full discussion of the foregoing questions in the form of a written report, based upon your knowledge of such matters, with your answers supported by such data as you may be able to obtain from the officers of the company and from other sources.

By direction of the Massachusetts Highway Commission,
A. B. FLETCHER, *Secretary*.

Professor Jackson's report, made in March, 1908, is printed in full in Appendix A.

CERTAIN PRELIMINARY RECOMMENDATIONS TO THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY.

The commission felt, after receiving Professor Jackson's report, that, while the petitioners could not be then answered conclusively, it was possible to make certain tentative recommendations to the company concerning a reduction in toll rates between some of the suburban exchanges and the metropolitan exchanges, and concerning an inventory and appraisal of the property of the company and certain traffic studies which appeared to be absolutely necessary before any substantial progress could be made in determining the general questions raised at the hearings; and the following letters were exchanged between the commission and the telephone company:—

MARCH 28, 1908.

THOMAS SHERWIN, Esq., *President, New England Telephone and Telegraph Company, 125 Milk Street, Boston, Mass.*

SIR:—The investigation now being made by the Massachusetts Highway Commission into the affairs of the New England Telephone and

Telegraph Company has demonstrated that the operation of no other business involves so many or such complicated questions. The consideration of rates or service requires an intimate knowledge of the relations of the different parts to the whole, and no change can be made in any part without affecting the whole. Early in the investigation the commission was of the opinion that an appraisal of the property of the company would be necessary, but on account of the great amount of labor and expense which would be involved the Board hesitated to recommend it until after a most careful consideration. The researches and analyses of accountants and telephone men employed by the Board, the testimony of witnesses, the many conferences with competent persons interested in the solution of the problem and the reports of able and disinterested experts have shown that no satisfactory conclusion, whether it relates to the Boston and suburban exchanges alone or to other sections of the Commonwealth, can be reached until after a complete appraisal and traffic study under the direction of competent engineers shall have been made. In short, the Board believes that the total investment must be apportioned over the several classes of service before any permanent and satisfactory method of adjusting rates can be established.

It appears to the Board, also, as a result of its investigation, that a reduction in the gross revenue of the company can be effected without prejudice to the service or injury to the stockholders. With the understanding that the recommendation is but tentative, and believing that it may be changed or extended by further research, the Board is of the opinion that an immediate reduction in the toll rates between the metropolitan exchanges and certain of the suburban exchanges, for subscribers' telephones, should be made.

The commission therefore makes the following recommendations to the New England Telephone and Telegraph Company:—

1. That, provided the Legislature makes the appropriation needed for the expenses of the commission in connection with the work, an inventory and appraisal of the property of the New England Telephone and Telegraph Company be made as soon as possible, said inventory to include the property of the company in Massachusetts in detail, and to extend over the remainder of the territory covered by the company's operations, but in less detail if the company shall so elect for that portion outside of Massachusetts, all in accordance with a prearranged plan to be prepared by the commission, the property schedules to be made by the company under the supervision and direction of the commission and its expert assistants.

2. That careful studies of the traffic over the company's lines be made by the company during the period when the inventory and appraisal are in progress, said studies to follow a comprehensive plan to be prepared by the expert assistants of the commission and to be submitted to the company at an early date.

3. That a preliminary adjustment of the toll rates now in force in the Boston and suburban division be made by a reduction in said toll rates between subscribers' telephones, in all exchanges within a radius of 5 miles from the center of gravity of the metropolitan telephone service, from ten cents to five cents for each conversation of five minutes' length, it being understood that the following 16 suburban exchanges will be affected thereby: Charlestown, East Boston, South Boston, Cambridge, Chelsea, Roxbury, Somerville, Brookline, Everett, Dorchester, Revere, Winthrop, Jamaica Plain, Brighton, Malden and Medford exchanges.

Respectfully,

W. E. MCCLINTOCK,

HAROLD PARKER,

JOHN H. MANNING,

Massachusetts Highway Commission.

APRIL 2, 1908.

WILLIAM E. MCCLINTOCK, Esq., HAROLD PARKER, Esq., JOHN H. MANNING, Esq., *Massachusetts Highway Commission.*

GENTLEMEN:—Replying further to your letter of recommendations to the New England Telephone and Telegraph Company under date of March 26, already acknowledged under date of March 28, I beg to state that as to the first recommendation of your Honorable Board, relative to an inventory of the property of the company, the company stands ready to comply with the recommendation, and is ready to proceed with such inventory as soon as we are in receipt of the plans therefor, and the further direction of your commission or its experts.

As to the second recommendation of your Honorable Board, having reference to studies of traffic over the company's lines, to be made during the period while the inventory and appraisal are in progress, the company will be very glad to co-operate in whatever plans along this line may be outlined either by the commission or its experts.

As to the third recommendation of your Honorable Board, relative to reducing from ten to five cents the toll rate between the metropolitan exchanges and 16 of the suburban exchanges within 5 miles of the center of the metropolitan district, we note that the recommendation of your commission specifies communications between subscribers' telephones. I have assumed that this is intended to include calls made by subscribers using our so-called coin-box service. Inasmuch as a subscriber is privileged, under the terms of his contract, to allow the use of his telephone by others than himself and members of his family and his employees, this class of service is in some aspects similar to a public pay-station service, and if the toll rate were reduced on this class of service it might lead to much misunderstanding on the part of subscribers or others of the general public using public pay stations by reason of the fact that from a regular public pay

station a person might be compelled to pay ten cents for a call into Boston, whereas from a subscriber's pay station next door he would only have to pay five cents. I feel certain that such conditions would result in confusion and misunderstanding, which we feel should be avoided if possible, and before taking definite action on this recommendation of your Honorable Board we would be glad to receive further advices as to the scope of this recommendation, — whether it is to include tolls from subscribers' stations carrying pay-station privileges, and if so, whether it is also to include tolls from public pay stations.

Waiting your further advices, I am,

Yours very respectfully,

THOMAS SHERWIN, *President.*

APRIL 3, 1908.

THOMAS SHERWIN, Esq., *President, New England Telephone and Telegraph Company, 125 Milk Street, Boston, Mass.*

SIR: — The commission acknowledges your letter of April 2, 1908, in which it is stated that the New England Telephone and Telegraph Company will comply with the first and second recommendations of the commission, made in its letter of March 26, 1908.

With reference to the third recommendation of the Board, namely, that relative to reducing from ten cents to five cents the toll rate between the exchanges in the metropolitan district, so called, and the suburban exchanges within 5 miles of the center of the said metropolitan district, your letter states that the company desires further advice as to the scope of the recommendation before taking final action.

It should be stated that in the recommendation just referred to the commission intended that such of the subscribers of the company as use the so-called coin-box service should participate in the reduction of the tolls, but it was not intended that the public pay stations should be so included, although it was recognized that ultimately, and possibly within a short time, the company would be obliged to place all telephones in the exchanges referred to on the same toll-rate basis.

Your letter indicates that you anticipate much trouble unless the tolls for all classes of service are upon the same basis, and this illustrates well the suggestion in the commission's letter of recommendations of the difficulty of changing any particular rate without affecting the whole.

Notwithstanding the considerable further lessening of revenue to the company which will result therefrom, the commission believes, after carefully considering the several points raised in your letter, that to make its recommendations of the fullest value to the public reduction in toll rates should also extend to the pay stations.

That there may be no misapprehension of its intent, the commission now makes the following recommendation to the company, amplifying somewhat the third recommendation of its letter of March 26, namely:—

That a preliminary adjustment of the toll rates now in force in the Boston and suburban division be made by a reduction in said toll rates from ten cents to five cents for each conversation of five minutes' length between subscribers' telephones in all exchanges within a radius of 5 miles of the center of the metropolitan district and subscribers' telephones in said metropolitan district, said reduction to apply also to all classes of service which now pay toll rates for such conversations, including the so-called coin-box service carrying pay-station privileges and the public pay stations, it being understood that by metropolitan district is meant the group of 7 exchanges known as Main, Back Bay, Fort Hill, Haymarket, Oxford, Richmond and Tremont, and that the suburban exchanges, 16 in number, which shall participate in the said reduction are: Charlestown, East Boston, South Boston, Cambridge, Chelsea, Roxbury, Somerville, Brookline, Everett, Dorchester, Revere, Winthrop, Jamaica Plain, Brighton, Malden and Medford.

Respectfully,

W. E. McCLINTOCK,

HAROLD PARKER,

JOHN H. MANNING,

Massachusetts Highway Commission.

APRIL 3, 1908.

WILLIAM E. McCLINTOCK, Esq., HAROLD PARKER, Esq., JOHN H. MANNING, Esq., *Massachusetts Highway Commission, 15 Ashburton Place, Boston, Mass.*

GENTLEMEN:—Acknowledging receipt of your letter of April 3, relative to the recommendation of your Honorable Board concerning the reduction in the toll rate between telephone stations in the metropolitan district and telephone stations in the 16 suburban exchanges within 5 miles of the center of the metropolitan district, I beg to state that the company will make the change in accordance with the recommendation of your Honorable Board, and that the reduction in toll rates as recommended in your letter of April 3 will be put into effect on the fifteenth day of April.

I am, yours very respectfully,

THOMAS SHERWIN, *President.*

In reply to a question raised by the company on May 20 the commissioners stated that “in the recommendation which

they made relative to the reduction of the toll rate from ten to five cents, they had in mind the location of the *exchanges* only and not the location of the *subscribers' stations* connected with such exchanges."

INVENTORY. — APPRAISAL. — TRAFFIC STUDIES.

On May 26, 1908, the Legislature, on the recommendation of the commission and in accordance with a special message of His Honor the Acting Governor, passed the following resolve:—

RESOLVES OF 1908, CHAPTER 102.

RESOLVE TO PROVIDE FOR AN INVENTORY AND APPRAISAL OF THE PROPERTY OF THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY.

Resolved, That the Massachusetts highway commission is hereby directed to cause to be made an inventory and appraisal of the property of the New England Telephone and Telegraph Company, especially that part of the property which is within the commonwealth. Vouchers for the expenses incurred under the provisions of this resolve shall be filed with the auditor of the commonwealth and paid out of the treasury of the commonwealth in the same manner in which other claims are paid, and he shall certify each month the amount of said expenses to the treasurer and receiver general who shall assess and collect the same monthly from the New England Telephone and Telegraph Company. The total expenses under this resolve shall not exceed the sum of thirty thousand dollars.

The firm of D. C. & Wm. B. Jackson was retained to prepare the schedules and plans for the inventory, appraisal and traffic studies, and to supervise the same.

The work was begun as soon as the preliminary arrangements were made, and it has proceeded without loss of time.

It is believed that no such inventory of the property of any large telephone company has been undertaken before in this country. The annual return of the New England Telephone and Telegraph Company for the year ending June 30, 1908, shows the "book value" of its property to be \$30,677,-964.77.

This company operates in four of the New England States; its poles and wires are placed along many thousands of miles of highway; it has more than 400 exchanges, at least 226,000 subscribers and 233,000 stations. Taking these statistics into

consideration, it is not difficult to appreciate the magnitude of the undertaking.

Every mile of highway had to be gone over, each pole and the wires thereon counted, every subscriber's line noted and every underground conduit and the cables which they contain traced out. All the buildings owned by the company were inspected and appraised by experts, together with the complicated exchange equipment in all of the exchanges controlled by the company. These are but a few of the almost infinite number of details of the company's plant which will be included in the inventory.

The computations during and after the completion of the field work should not be overlooked. A trained force of computers, working with machines of various makes, has been engaged for months in checking and computing. At the close of the fiscal year there were 26 employees at work in the company's office on the inventory, and at the same time 136 men were in the field.

Mr. Hammond V. Hayes, formerly chief engineer of the American Telephone and Telegraph Company, was placed in charge by the New England Telephone and Telegraph Company, to represent its interests, and he has had the direction of the company's employees.

The work and costs have been checked and verified at every point by Messrs. D. C. & Wm. B. Jackson and the experts working under them.

At the request of the commission, to indicate the present status of the inventory, Professor Jackson has just made the following report of progress:—

BOSTON, Jan. 5, 1909.

The Honorable Massachusetts Highway Commission, 15 Ashburton Place, Boston, Mass.

GENTLEMEN:—The inventory and valuation of the property of the New England Telephone and Telegraph Company was carried on during the summer with considerable despatch, and with an accuracy that is to our full satisfaction. In accordance with the arrangement made by your Honorable Board, the field work of inventorying the property has been carried out by the telephone company. The company has had as many as 198 employees occupied at one time on this work. Fixing the unit values and checking the inventory has been

done by D. C. & Wm. B. Jackson on your behalf. The verification of the inventory of property in Massachusetts is complete and the appraisal made. This appraisal has been made by districts corresponding to the regions served by individual telephone offices, and the toll property has been appraised separately from the property required for local service.

Some delay in completing the entire project has occurred on account of the appraisal of the property in the States of Maine, New Hampshire and Vermont. As much as one-fourth of the total investment of the company is located in those three States, and it seems necessary to properly determine its value if you desire to apportion the capital of the company between Massachusetts on the one hand and the other States on the other hand.

The original plan for executing this inventory and appraisal included a complete inventory of the property in the State of Massachusetts, covering the entire State in detail; and it contemplated making a less detailed inventory of the property in the remainder of the territory covered by the company's operations. However, the company ultimately expressed a desire to carry out the appraisal in the other States with the same exactness and precision as in Massachusetts. This modification of the original plan regarding the property outside of Massachusetts was approved. The modification is causing a delay in the completion of the work, but the company is now pressing it to a conclusion with over 100 employees engaged in the field and office.

I now expect the full inventory and appraisal for the entire property of the company to be completed within a few weeks, and D. C. & Wm. B. Jackson will shortly thereafter be able to deliver you a complete report on the appraisal, with a discussion of its significance.

Respectfully yours,

DUGALD C. JACKSON.

As the foregoing report indicates, the inventory and appraisal are very nearly completed and the expert's report thereon may be expected within a few weeks.

EFFECT OF REDUCTION IN TOLL RATES IN BOSTON AND SUBURBAN DIVISION OF THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY.

It is too early to estimate with any precision the full effect of the reduction in the toll rates from ten to five cents between the 16 suburban exchanges and the metropolitan exchanges, which has been in force since April 15, 1908. From infor-

mation furnished by the company it is evident that the volume of such business has increased greatly, and that the loss of net revenue which was at first very large, is being steadily lessened. Any estimate of the effect of the reduction is complicated by the increased operating expenses due to the greater volume of business.

It is hoped that after the inventory and appraisal are completed and the general problem of rates is considered full facts concerning the effect of the preliminary reduction in toll rates will be known.

During the year there has been no evidence of any attempt by the telephone companies nor by the telegraph companies operating under Massachusetts charters to withhold any information from the commission, except in the single case already mentioned, and in that instance the trouble was very likely due to faulty accounting rather than to a desire to conceal anything.

Attention was called in the last annual report to the fact that the return of the Western Union Telegraph Company, a foreign corporation, was not satisfactory. The return for 1908 is little or no better, and the commission is now seeking the advice of the Attorney-General as to the procedure necessary to compel that corporation to comply with the laws of Massachusetts.

HAROLD PARKER,
JOHN H. MANNING,
WM. D. SOHIER,
Massachusetts Highway Commission.

APPENDIX A.

REPORT OF MESSRS. D. C. & WM. B. JACKSON.

BOSTON, MASS., March 10, 1908.

To the Honorable Massachusetts Highway Commission, Boston, Mass.

GENTLEMEN:—I have given the questions set forth in your letter of instructions, dated January 21, careful consideration. I have conferred with your Honorable Board, with the officers of the New England Telephone and Telegraph Company and with others interested in the telephone problem of Massachusetts, and have considered the now available data bearing upon the subject-matter of your questions.

Your letter of instructions lays down three questions which you wish me to answer at this time. These questions are:—

1. Is an appraisal of the plant of the New England Telephone and Telegraph Company necessary before any satisfactory solution can be had of the general problem of what should be the equitable rates for service of said company throughout its Massachusetts territory, and, if so, how should such inventory and appraisal be made, and what would be the probable cost of the same?

2. Without prejudice to the general problem of what should be the equitable rates for service of the New England Telephone and Telegraph Company throughout its Massachusetts territory, and in the absence of a complete inventory and appraisal of the plant of said company, is it possible to reduce the toll rates now in force in the Boston and suburban division for toll business into and out from the so-called metropolitan exchanges, and if such a reduction may be so made upon what basis should it be effected?

3. With the same premises as stated in question 2, in order to improve the quality of the service given by the New England Telephone and Telegraph Company, is it possible and is it advisable to change at the present time the multi-party lines in the Boston and suburban division to lines having not more than two subscribers thereon, with the so-called "divided ringing" appliances?

The first two questions relate particularly to the proper adjustment of rates of charge for telephone service, while the third question relates more particularly to means for improving certain classes of service. However, the question of adequate service is so inseparably connected with that of proper rate adjustment that the one cannot be divorced from the other, and both must be kept constantly in mind in the course of formulating the answer to each of the three questions.

There are so many independent variables affecting the problem of the equitable adjustment of telephone rates that it is one of the most complicated problems in the realm of rate-making. A full appreciation of the many factors entering into the problem is requisite to enable one to intelligently answer, or, in fact, to fully understand, the questions at issue.

The commercial telephone art has developed from nothing to its present importance in no more than a generation, and it is still far from having reached a stable condition of development. The Commission of Engineers which made a comprehensive report in 1907, formulated after extended investigation of the telephone situation in Chicago, made the following introductory statements regarding the characteristics of the telephone rate problem:—

A telephone company in a large city must face a problem in many respects more complex than that of any other public utility corporation. The water department is called upon to sell a single commodity, namely, water, and at prices which are fixed with comparative readiness. The gas company also is called upon to sell a single commodity, metered for nearly every customer, and its conditions in dealing with customers are relatively simple. It may sell some additional by-products, as coke, tar and ammonia, but the quantities and market values of these are readily arrived at. The traction company has a more complex problem than some of the other purveyors of public utilities, but even here the price paid by the several patrons is uniform, and the substantial difference between patrons lies only in the lengths of the rides which they may choose to take.

The telephone problem, on the contrary, involves many complexities, partially caused by the relatively large number of classes of service which the telephone company must offer to its patrons for the purpose of fully developing the telephone service of the city, and partially by the intangible character of the electric medium with which the telephone business is carried on, the delicacy of the apparatus used, and the wide differences in the manner and extent of the use of the apparatus by the various subscribers.

If a telephone company properly extends the telephone service in

the city, it must be prepared to take care of the requirements of a range of patrons as wide as the interests of the city itself, including the largest business organizations, the hotels, the newspapers, the professional men, the small business houses and residences of all classes. It must provide apparatus for the service of each class of patrons which will enable it to furnish the service to each subscriber at an appropriate price within his means. It is desirable for the prices to be graded so that the largest user shall not pay less than his fair share of the expense of maintaining the traffic and the remuneration to the company for its investment, and equally so that the smaller user may get his telephone service at a price which is within his means and yet is reasonably remunerative to the company for its outlay.

Telephone service has been of remarkably rapid development and extension in this country. Less than fifteen years ago there was no telephone exchange system with as many as 10,000 subscribers served by the system. At that time the number of telephones in Chicago was considerably under 10,000. . . . The rapid expansion of the telephone service began in Chicago in 1900, and approximately two years earlier in New York.

Prior to the time when the rapid increase in the number of telephones began, the telephone art had been steadily changing, and the increased rate of expansion of the telephone service began approximately coincidently with the introduction into the great cities of the modern so-called "common-battery" method of telephone operation. The prior apparatus used for telephone service was more expensive to operate and maintain, less convenient for the user and not adapted for the extended use to which the telephone is now put in the large cities,—all of which prevented the telephone service from becoming fully developed. The subscribers were not as well satisfied with the service which could be afforded them by the older apparatus, and it was also necessary to charge higher prices.

During the recent period of tremendous growth which has followed the introduction of the common-battery method of operation, accompanied by a service of greater convenience and lower prices, the telephone companies of the larger cities have been practically submerged in an effort to keep ahead of the demands of the people for additional telephones, and the problems relating to classification of service and appropriate charges for different classes of service have not been worked out in a suitable manner. The telephone companies have apparently been fully engaged in the extension of their business and the extension and improvement of their plants, and they have not found men or time to work at the details of operating economies and the best methods of handling the service of different classes of subscribers in the way that railroads, traction companies, electric light companies and various other public utility companies have been working out the details of economies relating to their processes of operation.

The telephone business is not only an unusually complex one, but the records of the existing telephone company doing a large business in Chicago are lacking in details which are needful for the fixing of specific scales of charges for different classes of service. We have endeavored to obtain data bearing on the cost of specific classes of telephone service from other telephone companies, including the Bell telephone companies of New York and elsewhere and also from certain of the so-called independent telephone companies, but in no instance have we been able to obtain records kept in such detail or in such manner as to afford appropriate data for fixing rates, and in every instance the rates seem to have been dictated by estimates based on experience or the requirements of business expediency, instead of being founded on a knowledge of the cost of the different classes of service. The telephone companies seem to go on the belief that their business is satisfactory if the total results of each year's business show a profit, and that it is unsatisfactory if the year's business does not show a profit, and they have heretofore apparently neglected to consider more than superficially the essential question whether the rates charged deal fairly by the different classes of subscribers.

The telephone art is by no means stable. In most of the well-developed lines of industry the art is on an advance, but is advancing at a substantially stable rate. This is the condition, for instance, of the railroad art. No unforeseen or unanticipated revolutionary changes are momentarily expected to occur in the railroad art on account of discoveries or inventions, but the telephone art is different. The telephone service is now expanding at its tremendous rate largely on account of the introduction of the common-battery system of operating telephones, and other improvements of more or less revolutionary character are likely to be introduced into the telephone art from time to time for decades to come.

The foregoing quotation shows that the Chicago commission of 1907 found the telephone problem in that city one of great complexity, and that the data necessary for taking rate-making out of the realm of simple business expediency were then lacking. The problem of telephone rates before your honorable body is even more complex than Chicago afforded, as it includes the contrasting complexities of service in a large city, service in many smaller cities, service in villages and rural communities, and the service known as toll service through which the various central points are enabled to communicate with each other.

Illustrating this fact, I will point out that the Boston and suburban district, with an estimated population of 1,300,000, is provided with as many different classes of service with their corresponding rates as are now provided in the city of Chicago to serve

the needs of 2,500,000 people; while the number of additional classes of service with their corresponding rates, which are provided throughout the rest of the Commonwealth of Massachusetts, are very numerous.

Before an equitable division between classes of service can be made of the charges and expenses that comprise the aggregate expense of giving service to customers of so many varieties or classes, each of which is served at its individual rates, it is necessary that a careful study shall be made of cost of plant, for the purpose of duly distributing and allotting the cost to the different classes of service, and that an equally careful study shall be made of the telephone traffic now handled, and of its rate of growth in the different parts of the State.

There are a number of independent factors which must be considered, as each has its influence upon the proper adjustment of rates. These factors include the character of construction and equipment required to take care of the service in the different portions of the Commonwealth which are served by the operating company's system, the relative density of traffic in the different portions, the extent and character of toll traffic from district to district which may be cultivated, the load factor of the traffic, etc. By load factor, I mean the ratio of the average number of messages conveyed per hour during the year to the number conveyed in the busiest hour of the exchange. This gives a measure of the completeness with which the subscribers utilize the plant which their maximum rate of use requires the company to provide.

Question 1. — Your first question normally subdivides itself into three closely related parts, as follows: —

(a) Is an appraisal of the plant of the New England Telephone and Telegraph Company necessary before any satisfactory solution can be had of the general problem of what should be the equitable rates for service of said company throughout its Massachusetts territory?

(b) In the event of an affirmative answer to the foregoing, how should such inventory and appraisal be made?

(c) What would be the probable cost of the same?

(a) As already stated, the telephone business has been one of marvelously rapid growth, and most telephone companies have not organized their record keeping in a way which is compatible with determining the true cost of furnishing a rapidly expanding and shifting service. In fact, many companies have been so fully occupied in constructing plant to care for the increasing demand

for their service that they have apparently not given the cost of individual classes of service any considerable thought. The usual rates for telephone service are determined by experience or as the result of business expediency rather than from a consideration of the costs that actually enter into supplying the service. The New England Telephone and Telegraph Company is no exception. It has, like other companies, been called upon to meet a rapidly increasing demand for service, and it has also grown to its present magnitude partly through consolidations or accretions of smaller telephone systems which apparently had preserved only the most meager records. The company therefore does not possess investment records, service cost records or traffic records, which would enable it to adjust rates on a basis of the actual cost of supplying the service.

Secretary Longley of the New England Telephone and Telegraph Company concisely presented the conditions regarding investment records in a letter to Mr. A. R. Patterson, which I find on pages 17 and 18 of the printed copy of the report to your honorable body made by Mr. George Albree. Secretary Longley therein says:—

There has never been any attempt at separation of the old classifications of construction when new classifications were adopted. It would have been impossible to make such separation except from inventories of the plant, which have never been made.

The result of this system of evolution is that the books of this company to-day do not furnish an accurate record of the various classes of construction, and no such record could be compiled from any records at hand.

The rates heretofore made by the New England Telephone and Telegraph Company are presumably based on the extended experience of officials who may be presumed to have the best interests of the company and its subscribers at heart; but it is undeniable that the rates heretofore made have been founded only on individual judgment and business expediency, and no better foundation can exist until a well-planned appraisal of the plant has been made, and fuller traffic records have been gathered. I understand it to be the desire of your honorable body to have before you an exhibit of costs of service in order that rates may be made on a sounder basis of equity than simple judgment and business expediency afford, and I am unable to see any plan by which this result can be accomplished without first obtaining a detailed appraisal of the company's plant throughout the Commonwealth. This ap-

praisal should be made according to districts outlined, with full consideration of traffic characteristics. The appraisal should also extend to the whole of the operating company's property, but need not be sectionalized or carried to so much detail beyond the limits of the Commonwealth. The costs for buildings, exchange equipment, distributing lines (overhead and underground), subscribers' stations, etc., must be segregated for each district. The cost of the distributing lines must be still further divided between trunk lines and subscribers' primary lines; and a separation should be made of the toll lines from the subscribers' lines, as far as practicable.

My conclusion that an appraisal is necessary before grounds can be found for rate-making on a basis of cost instead of a basis of expediency seems to be concurred in by Mr. George Albree, who reported to your honorable body. I will quote from page 4 of the printed copy of his report, putting certain portions in italics:—

In the first place, whichever of the courses is determined later as best to meet existing conditions, you will be confronted with the fact that, whether treating the company as a unit or as an aggregate of units, *the three elements, cost of plant, cost of its maintenance and cost of operation, are yet to be determined.*

My investigation has shown me that only the third factor, namely, cost of operation, can be obtained with any degree of accuracy from the books of the company submitted for my inspection.

An inventory and appraisal such as I recommend will represent the entire property of the telephone company as it now stands, and it will be unnecessary to have further general inventories of the property made in the future. By keeping correct construction, depreciation and renewal records and costs, and by their proper application, the telephone company can always maintain the general inventory as a true record of its property, from which the investment costs that enter into the various classes of service may be obtained at any time.

I will add that fuller records of traffic and study of traffic conditions are necessary before the cost of operation can be reasonably apportioned between classes of service, and traffic studies should be carried on while the appraisal is under way.

(b) Part (b) of your first question is:—

How should such inventory and appraisal be made? (Part (a) being answered in the affirmative.)

The work of making a proper inventory and appraisal of the telephone company's property may be carried out in either of three different ways:—

1. A competent firm of consulting engineers, employed by the Highway Commission for the purpose, might assume the entire work of making schedules of property and fixing suitable values thereon, utilizing as far as practicable the existing records of the company. The plans for the work would in this event be made up by the consulting engineers in consultation with your honorable body and the telephone company.

2. The Highway Commission might carry on the work with a force of employees gathered directly under its own employ; but this would thrust into the office of the Highway Commission all the minor details of organization relating to a large temporary force of employees who would have to be drilled into their work, and special quarters for carrying on the work would have to be provided in addition to the present offices of the commission. Besides which, consulting engineers would have to be employed to advise in the making of plans and in directing the progress of the work.

3. The work might be executed by the telephone company through its own employees, in consultation with engineers employed by the Highway Commission, by whom the plans for the work should be approved, and who would keep in constant touch with the progress of the work so as to be able to verify and certify its accuracy.

The third method seems to me most suitable for your purpose. By placing the responsibility of making the property schedules upon the telephone company, all records which the company now possesses can be most readily and quickly made available, and the required field data can be collected by the company's men more promptly than perhaps could be expected of men who were unfamiliar with the plant. The telephone company's employees, who are familiar with the plant in each district, can, with reasonable accuracy and despatch, make the inventories for their districts. As rapidly as these inventories are completed they can be quickly and accurately verified on the ground by the Highway Commission's consulting engineers, who would also verify the company's book records of property as far as necessary to determine their substantial accuracy.

The appraisal of the value of the plant given in the schedules should rest largely with the engineers employed by the Highway Commission, but this part of the work can also be greatly facili-

tated by enlisting the co-operation of the company for the purpose of making its records most fully available.

In view of all the considerations, it is my opinion that this method of obtaining a complete inventory and appraisal of the telephone property, namely, through the agency of the telephone company itself, co-operating with consulting engineers employed by the Highway Commission, who check and verify all results, is the one that will afford a satisfactory accomplishment with the least expenditure of time and money.

Whatever method for making the inventory and appraisal is adopted, it is essential that complete and detailed plans for the work shall be laid out before the taking of the inventory is begun, so that the desired classification and segregation of the different elements and parts of the system may be, as far as possible, automatically accomplished as the work progresses. If this precaution is not adopted the completed inventory will not attain its greatest value, and it may be rendered almost valueless so far as a basis for future rate adjustment is concerned.

(c) Making the inventory in this way would place upon the telephone company the burden of overcoming many of the annoying difficulties of executing the work, and would relieve the Highway Commission of much of the expense. Experience in various appraisals made by my firm (D. C. & Wm. B. Jackson), and acquaintance with the cost of appraisals made for the State of Michigan, the State of Wisconsin and the City of Chicago, lead me to estimate at between \$50,000 and \$60,000 as the total cost of an inventory and appraisal of the property of the telephone company suitable to the purpose of your honorable body.

With the telephone company executing the details of the work, the Highway Commission is relieved from that part of the expense, but must be prepared to bear the expense of making comprehensive plans for the work, supervising it and verifying the results, including putting the values on the property, and an analysis of the resulting data into forms which will make them most useful to you. It is my opinion that the Highway Commission ought to be authorized to expend as much as \$30,000 for these purposes. The Stone & Webster estimate of the total value of the company's property aggregates substantially \$38,000,000, of which a very large proportion is located within this Commonwealth, and \$30,000 is a moderate amount to expend for the above-enumerated work relating to the appraisal.

Question 2. — Your second question is: —

Without prejudice to the general problem of what should be the equitable rates for service of the New England Telephone and Telegraph Company throughout its Massachusetts territory, and in the absence of a complete inventory and appraisal of the plant of said company, is it possible to reduce the toll rates now in force in the Boston and suburban division for toll business into and out from the so-called metropolitan exchanges, and if such a reduction may be so made upon what basis should it be effected?

A study of the toll rates as they now exist in the Boston and suburban district between the metropolitan exchanges and the suburban exchanges convinces me that a more equitable adjustment of these rates can be made. In making such an adjustment it is necessary to take into account a large number of inter-related factors, which enter into the operation, maintenance and investment costs of the different exchanges and the connecting trunks between the suburban and metropolitan exchanges.

I believe that any final adjustment of the toll rates between the suburban exchanges and the metropolitan exchanges should be deferred until after a general inventory and appraisal of the telephone properties is made, in case the Highway Commission decides to go ahead with that work; but a tentative reduction of toll rates, with the object of bringing them closer to an equitable basis, may be made. However, it should be recognized that any change now made is only tentative, and is subject to revision after an appraisal of the property has been made and additional traffic and cost records have been obtained.

At the present time a toll charge of ten cents is being made to points distant less than $1\frac{1}{2}$ miles from the center of gravity of the metropolitan service, and this same charge is being made for messages carried distances up to and including $15\frac{1}{2}$ miles. Distance is not the only determining factor in fixing equitable telephone charges, but other important factors, like density of traffic and load factors, as far as these can be obtained from existing records, concur in indicating that the existing toll rates are manifestly unfair to the subscribers connected with the suburban exchanges close to the metropolitan exchanges.

In my opinion the toll rates paid by telephone subscribers for messages between the several metropolitan exchanges and the following 16 exchanges in the suburban district ought to be at

once reduced to five cents for each five-minute conversation: Charlestown, East Boston, South Boston, Cambridge, Chelsea, Roxbury, Somerville, Brookline, Everett, Dorchester, Revere, Winthrop, Jamaica Plain, Brighton, Malden and Medford. This reduction does not seem likely to be inconsistent with other readjustments of rate schedules which may hereafter be shown to be proper from the information derived from a proper appraisal of plant and from more complete traffic and cost records.

This reduction of toll rates between the metropolitan exchanges and 16 suburban exchanges would, in my opinion, be a step in the direction of equitably adjusted rates, and would, therefore, more acceptably bridge over the time until the necessary information can be obtained for a final rate adjustment. The change would reduce the Boston and suburban toll rates for all suburban exchanges within 5 miles of the center of gravity of the telephone service of the metropolitan district from a charge of ten cents for each five-minute conversation to a charge of five cents for each five-minute conversation from subscribers' telephones. It leaves the toll rates of the suburban exchanges beyond the 5-mile radius unchanged.

The suburban exchanges within the 5-mile radius cover 18.3 per cent. of the total suburban territory, serve 65.6 per cent. of the suburban subscribers and take care of more than three-fourths of the total Boston and suburban trunked calls; while the exchanges beyond the 5-mile radius cover 81.7 per cent. of the suburban territory, serve only 34.4 per cent. of the subscribers and take care of less than one-fourth of the total Boston and suburban trunked calls.

The average distance the toll messages are carried between the metropolitan exchanges and the exchanges within the 5-mile radius is approximately $3\frac{6}{10}$ miles, computed from the actual lengths of the message routes; while for the exchanges outside of the 5-mile radius the average message haul is approximately $10\frac{9}{10}$ miles. Although the average message haul is only one of the elements entering into the question of equitable rates, it has much influence under the conditions pertaining to the Boston and suburban district. In all cases of toll charges, the rates are quite properly influenced by distance of transmission, as plant cost is largely determined by it. Short haul, dense traffic may expect to command lower rates than longer haul messages of less traffic density, unless other factors are distinctly controlling.

This change will cause a substantial reduction in the company's

receipts. The company does not seem to possess traffic records from which the amount of the reduction may be determined, as the record of paid messages is not separated from the trunked messages originating in Charlestown, East Boston, South Boston and other suburban exchanges at telephones which pay metropolitan district prices, and consequently do not pay separately for calls to the metropolitan exchanges. Neither does the company separate public pay station calls from other trunked calls. However, in consideration of the present receipts from metropolitan-suburban calls and the effect a reduction of toll rates may have on the selection of classes by new subscribers, it seems obvious that the reduction of receipts will be a substantial figure until the effect of the lower rate is felt in stimulating the traffic.

Question 3.—Your third question is:—

With the same premises as stated in question 2, in order to improve the quality of the service given by the New England Telephone and Telegraph Company, is it possible and is it advisable to change at the present time the multi-party lines in the Boston and suburban division to lines having not more than two subscribers thereon, with the so-called “divided ringing” appliances?

The question of limiting the number of subscribers that may be connected to any one circuit is important and deserves careful consideration. As already set forth in my report, the questions of character of service and cost of supplying the service are so inseparably related that one must go hand in hand with the other.

There are at present over 31,000 subscribers receiving telephone service from the so-called multi-party lines (that is, lines for more than two subscribers), most of them being connected to four-party circuits, but over 8,200 being connected to six-party and eight-party circuits. The company estimates that it would require the addition of approximately 8,000 new subscribers’ lines, with accompanying exchange office equipment, to change all of these subscribers to two-party lines, and that the cost of the required additional circuits and equipment would be \$1,000,000, which may be accepted as an outside figure. This estimate is made on the proviso of maintaining the existing ratio of reserve plant, which may be accepted for the estimate, but the Stone & Webster report points out that the existing ratio is high.

The cost of this change of the multi-party lines to two-party lines thus assumes large proportions, and the change to new classifica-

tions would alter the receipts of the company in an unknown degree. The company now has no data from which to determine equitable charges in the new rates created, and the whole change would be left in the realm of experiment and expediency.

With the present arrangement of lines, each 10 subscribers on multi-party lines require $3\frac{3}{10}$ telephone circuits with their accompanying exchange equipment; while under the changed conditions each 10 subscribers, making reasonable allowance for reserve plant, would require $6\frac{1}{4}$ telephone circuits, with a corresponding increase in exchange equipment. This would entail a large increase in the investment and the operating cost per subscriber. There can be no denial that six and eight-party lines contribute an unwelcome part to operating difficulties, and make largely for bad service in a large exchange system, and for these reasons should be abolished. The same is true of four-party lines in business service, but the disadvantages are not so exaggerated. It is my understanding that the telephone company has ceased to quote prices for six-party and eight-party service, and that four-party business service is only quoted in connection with coin-box telephones. The question of the multi-party service, therefore, largely resolves itself into, How may the more than 8,200 six-party and eight-party subscribers already obtaining service from the company be provided with a service which reacts less unfavorably on the general service of the system? Over 7,000 of these subscribers are on six-party lines for unlimited suburban residence service, at the rate of \$25 per annum. The others come into various classes, with correspondingly various rates. The traffic data that I have thus far obtained from the company do not afford a sufficient basis for determining what changes of rates could be made which would result in these subscribers transferring to other classes, and which would at the same time tend toward a general improvement of charges.

It seems to me that it is not desirable to make hasty changes in the multi-party line situation. A change to two-party service, as proposed by the telephone company, is feasible; but such a change involves a complete readjustment of the suburban rate schedules. Such a readjustment at the present time could be effected only on the basis of past experience and business expediency. If your honorable body determines to order an inventory and appraisal of the company's property, and the keeping of more effective traffic and cost records, I believe that the public interests will be better guarded by gathering the needed data before disposing of this question, as any general readjustment of telephone

rates in the suburban district should be made from the platform of equitable charges in each class of service and not only for the purpose of accomplishing a transfer of subscribers from certain obsolete classes. That is, it is my opinion that the multi-party line question should be deferred until it can be considered in connection with the broader question of rate readjustment.

Conclusions.

I will now briefly recapitulate my conclusions:—

1. A properly planned and executed inventory and appraisal of the property of the New England Telephone and Telegraph Company is necessary before any satisfactory solution can be made of the problem of what should be the equitable rates for the service of the company throughout its Massachusetts territory.

2. To serve its desired purpose, such inventory and appraisal must be made according to a well-digested, pre-arranged plan, which will result in subdividing the property into its natural operating divisions, and whereby the value of plant will be apportioned so that a distribution of expense depending on investment may be correctly made amongst the different classes of service.

3. The Commonwealth should be carefully districted for the purposes of the appraisal, and the property in each district should be listed under headings of the following nature or their equivalents: land, buildings, central office equipment (except toll boards), subscribers' station equipment (extension telephones and private branch exchange terminal instruments, other terminal instruments and private branch exchange switchboards), exchange furniture and fixtures, other furniture and fixtures, underground conduit, underground cable for subscribers' lines, submarine cable for subscribers' lines, pole lines, aerial cable for subscribers' lines, aerial wire for subscribers' lines, tools, teams, materials and supplies on hand, repair shop equipments, toll boards, toll lines distributed as underground and aerial lines and separated from subscribers' lines as accurately as conditions permit, trunk lines between exchanges (except toll lines) distributed as underground and aerial lines and separated from subscribers' lines as accurately as conditions permit, private lines, including conduits, cables, poles, etc.

4. The inventory and appraisal should cover the entire State of Massachusetts in detail, and should also extend over the remainder of the territory covered by the company's operations, but may be there made in less detail.

5. Making the property schedules for the appraisal should be placed in the hands of the telephone company, but the plan of the work should be subject to the approval of consulting engineers employed by the Highway Commission, who should keep in constant touch with the progress of the work, checking and verifying it before it is completed. These engineers should also place the values on the property laid down in the schedules, in co-operation with the company and with due consideration of the company's cost records.

6. The Highway Commission should have at its disposal \$30,000, to cover their expenses connected with an inventory and appraisal made in the manner recommended in my report.

7. A preliminary adjustment of the Boston and suburban toll rates seems to me expedient. This may fairly consist of a reduction of the toll rates between subscribers' telephones in the metropolitan district and subscribers' telephones in all exchanges within a radius of 5 miles from the center of gravity of the metropolitan telephone service, from ten cents to five cents for each conversation of five minutes' length. The change here recommended apparently will not cause difficulties among existing exchange rates, nor is it likely to prove inconsistent with the introduction of revised exchange rates if further study should commend a revision to your honorable body; and it is apparently in the direction of equitable rate adjustment. It affects the following 16 suburban exchanges: Charlestown, East Boston, South Boston, Cambridge, Chelsea, Roxbury, Somerville, Brookline, Everett, Dorchester, Revere, Winthrop, Jamaica Plain, Brighton, Malden and Medford.

8. A change of the multi-party line service to two-party service is desirable and should be accomplished for the six-party and eight-party lines at the earliest practicable date; but the means for making the change come essentially into the rate problem, and the change cannot be now effected on any other basis than expediency and "what the traffic will bear," and it is therefore my opinion that a general change of this service should be deferred until after the appraisal has been completed and additional cost and traffic data are available.

Respectfully submitted,

DUGALD C. JACKSON.

EXHIBIT No. 2.

The following tables show the number of subscribers on Jan. 25, 1908, of each suburban exchange within the 5-mile radius and of each suburban exchange outside of the 5-mile radius, together with aggregate number of subscribers for each set:—

Suburban Exchanges within the 5-mile Radius.

Name of Exchange.	Number of Subscribers.
Brighton,	1,225
Brookline,	4,798
Cambridge,	5,239
Charlestown,	904
Chelsea,	1,232
Dorchester,	3,987
East Boston,	967
Everett,	951
Jamaica Plain,	2,355
Malden,	2,006
Medford,	1,012
Revere,	491
Roxbury,	4,294
South Boston,	1,184
Somerville,	3,182
Winthrop,	849
Total,	34,676

Total number of subscribers served by the 16 exchanges within
the 5-mile radius, 34,676

Suburban Exchanges outside of the 5-mile Radius.

Name of Exchange.	Number of Subscribers.
Arlington,	898
Belmont,	359
Braintree,	321
Canton,	220
Cohasset,	181
Dedham,	592
Hingham,	284
Hull,	115
Hyde Park,	869
Lexington,	505

Name of Exchange.	Number of Subscribers.
Lincoln,	123
Melrose,	1,186
Milton,	1,090
Needham,	272
Newton, North,	2,245
Newton, South,	1,339
Newton, West,	1,114
Norwood,	320
Quincy,	1,086
Randolph,	185
Reading,	346
Stoneham,	245
Wakefield,	461
Waltham,	1,359
Wellesley,	598
Weymouth,	373
Winchester,	949
Woburn,	572
Total,	18,207

Total number of subscribers served by 28 exchanges outside of
the 5-mile radius, 18,207

Total number of subscribers served by the suburban exchanges, . 52,883

Percentage of all suburban subscribers served by the 16 ex-
changes inside of the 5-mile radius, 65.6

Percentage of all suburban subscribers served by the 28 ex-
changes outside of the 5-mile radius, 34.4

NOTE. — Two suburban exchanges have been added since 1906.

EXHIBIT No. 3.

These figures are estimated by the telephone company for the year ending Dec. 31, 1906, and are based on twelve monthly peg counts.

Trunked Traffic between Metropolitan Exchanges and Suburban Exchanges for Calendar Year 1906.

Between Metropolitan Exchanges and—	Miles to Exchange from Metropolitan Center.	Total Messages In and Out.
Charlestown,	1½	2,028,222
East Boston,	1½	1,241,336
South Boston,	1½	1,620,042
Cambridge,	2½	4,242,686
Chelsea,	2½	990,515
Roxbury,	3	3,522,708
Somerville,	3	1,751,808
Brookline,	3½	3,116,102
Everett,	3½	483,641
Dorchester,	4	2,244,700
Revere,	4	270,461
Winthrop,	4	409,654
Jamaica,	4½	1,539,734
Brighton,	5	747,257
Malden,	5	887,793
Medford,	5	342,835
Total number of messages between the 16 exchanges within the 5-mile radius and the metropolitan exchanges,		25,439,494

NOTE. — The traffic under Exhibit No. 3 includes business originated from the following sources: unlimited exchange service, measured service, ten-cent toll charges for use of trunk lines.

Between Metropolitan Exchanges and —	Miles to Exchange from Metropolitan Center.	Total Messages In and Out.
Milton,	6	455,512
Arlington,	6½	350,246
Melrose,	7	393,203
Quincy,	7½	651,803
Hyde Park,	8	463,927
Newton, North,	8	1,052,441
Newton, South,	8	496,035
Newton, West,	8	616,622
Winchester,	8	275,391
Stoneham,	9	90,586
Waltham,	9½	676,149
Braintree,	10	146,140
Dedham,	10	306,823
Wakefield,	10	328,433
Woburn,	10	256,929
Hull,	11	93,603
Lexington,	11	127,989
Needham,	11	87,928
Weymouth,	11½	179,304
Hingham,	12	371,355
Wellesley,	12	275,985
Norwood,	13½	188,724
Randolph,	13½	88,795
Lincoln,	14	48,872
Canton,	15	98,307
Cohasset,	15½	130,791
Total number of messages between the 26 ex- changes outside of the 5-mile radius and the metropolitan exchanges,		8,251,893

Percentage of all trunked messages between the met- ropolitan exchanges and suburban exchanges which originate or terminate in the 16 suburban exchanges inside of the 5-mile radius,	75.5
Percentage of all trunked messages between the met- ropolitan exchanges and suburban exchanges which originate or terminate in the 26 exchanges outside of the 5-mile radius,	24.5

NOTE. — Belmont district included with Arlington; Reading district included with Wakefield. The actual message routes are longer than the given distances of suburban exchanges from metropolitan center.

EXHIBIT No. 4.

The following table shows the number of three-party, four-party, six-party and eight-party lines in service, the number of subscribers served from each class of lines, and the average number of subscribers served per line in each class:—

	Number of Lines.	Number of Subscribers.	Average Subscribers per Line.
Three-party lines, . . .	829	1,451	1.75
Four-party lines, . . .	7,471	21,982	2.94
Six-party lines, . . .	1,853	7,152	3.86
Eight-party lines, . . .	231	1,065	4.61
	10,384	31,650	3.05

The average number of lines required for each 10 subscribers equals,
— 3.28 lines.

APPENDIX B.

ABSTRACTS OF ANNUAL RETURNS FOR THE YEAR ENDING JUNE
30, 1908, OF COMPANIES ENGAGED IN THE TRANSMISSION OF
INTELLIGENCE BY ELECTRICITY IN MASSACHUSETTS.

LARGE TELEPHONE COMPANIES.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 15 Dey Street, New York, N. Y.

Date of incorporation: March, 1885.

State where incorporated: New York.

Date of annual meeting: last Tuesday of March.

Date of organization: March, 1885.

Date when company began to give service: 1885.

GENERAL OFFICERS AND OFFICIAL TITLES.

Theodore N. Vail,	.	.	.	.	.	.	<i>President.</i>
Edward J. Hall,	.	.	.	.	.	.	<i>Vice-President.</i>
Bernard E. Sumry,	.	.	.	.	.	.	<i>Vice-President.</i>
Charles P. Ware,	.	.	.	.	.	.	<i>Vice-President.</i>
Charles E. Hubbard,	.	.	.	.	.	.	<i>Secretary.</i>
William R. Driver,	.	.	.	.	.	.	<i>Treasurer.</i>
Charles G. Du Bois,	.	.	.	.	.	.	<i>Comptroller.</i>

DIRECTORS AND RESIDENCES.

Charles W. Amory,	.	.	.	.	.	.	Boston, Mass.
Thomas B. Bailey,	.	.	.	.	.	.	Boston, Mass.
George F. Baker,	.	.	.	.	.	.	New York, N. Y.
Francis Blake,	.	.	.	.	.	.	Auburndale, Mass.
Harry H. Brigham,	.	.	.	.	.	.	New York, N. Y.
Alexander Cochrane,	.	.	.	.	.	.	Boston, Mass.
T. Jefferson Coolidge, Jr.,	.	.	.	.	.	.	Manchester, Mass.
W. Murray Crane,	.	.	.	.	.	.	Dalton, Mass.
George L. Green,	.	.	.	.	.	.	New York, N. Y.
Henry S. Howe,	.	.	.	.	.	.	Brookline, Mass.
Charles E. Hubbard,	.	.	.	.	.	.	Cambridge, Mass.
William L. Putnam,	.	.	.	.	.	.	Manchester, Mass.
Thomas Sanders,	.	.	.	.	.	.	Haverhill, Mass.
Sylvanus Schoonmaker,	.	.	.	.	.	.	New York, N. Y.
Nathaniel Thayer,	.	.	.	.	.	.	Lancaster, Mass.
Theodore N. Vail,	.	.	.	.	.	.	Lyndonville, Vt.
John I. Waterbury,	.	.	.	.	.	.	Morristown, N. J.
Moses Williams,	.	.	.	.	.	.	Brookline, Mass.

CAPITAL.

Capital authorized by charter,	\$250,000,000 00
Capital authorized by vote of company,	180,587,000 00
Capital paid in, 1,805,870 shares; par value, \$100,	180,587,000 00

Whole number of stockholders, 24,468

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
March 1, 1906,	March 1, 1936,	Not secured,	4	\$100,000,000 00
July 1, 1899,	July 1, 1929,	Stocks and bonds deposited as collateral,	4	53,000,000 00
Jan. 1, 1907,	Jan. 1, 1910,	Not secured,	5	25,000,000 00
July 1, 1898,	July 1, 1908,	Stocks and bonds deposited as collateral,	4	6,011,000 00
Total amount of bonds and notes,				\$184,011,000 00
Capital paid in,				180,587,000 00
Total liability for capital and loans,				\$364,598,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ¹		\$14,541,484 00
General expense,	\$2,190,234 00	
Operating expense,	1,973,003 00	
Current repair (maintenance),	2,167,678 00	
Other expenses,	1,054,074 00	
Total expenses,		7,384,989 00
Net revenue from operation,		\$7,156,495 00
Miscellaneous income: —		
Real estate revenue,	\$205,548 00	
Income from securities,	18,083,698 00	
Other miscellaneous income,	93,202 00	
Total miscellaneous income,		18,382,448 00
Total income above expense,		\$25,538,943 00
Fixed charges: —		
Interest on funded debt,	\$6,175,000 00	
Interest on floating debt,	1,466,786 00	
Total fixed charges,		7,641,786 00
Net divisible income,		\$17,897,157 00
Dividends declared, 8 per cent.,		11,801,680 00
Surplus for year ending June 30, 1903,		\$6,095,477 00

¹ Gross earnings from operation in Massachusetts, \$4,540.

EARNINGS (WHOLE SYSTEM).

	Items.	Totals.
Toll service: —		
Toll service,	\$7,090,384 00	
Leased line rental,	1,833,369 00	
Miscellaneous toll earnings,	23,343 00	
Total toll service,		\$8,947,096 00
Conduit, pole and roof rent,		169,602 00
Licensee companies,		5,424,786 00
Revenue from operation,		\$14,541,484 00
Miscellaneous income: —		
Real estate revenue,	\$205,548 00	
Dividends on stocks of other companies,	12,365,301 00	
Interest on bonds and notes of other companies,	5,718,397 00	
Other miscellaneous income,	93,202 00	
Total miscellaneous income,		18,382,448 00
Total gross earnings and income,		\$32,923,932 00

EXPENSES (WHOLE SYSTEM).

General expense,	\$2,190,234 00
Operating expense,	1,973,003 00
Maintenance expense,	2,167,678 00
Instrument expense,	731,591 00
Conduit, pole and roof rent,	205,816 00
Miscellaneous,	116,667 00
Total of all operating expenses,	\$7,384,989 00

GENERAL BALANCE SHEET.

Assets.

Toll construction,	\$38,865,402 75
Construction in process,	911,044 00
Other real estate required for operation,	360,826 47
Investment real estate not required for operation,	3,559,957 96
Office furniture and fixtures,	1,566,281 38
Total plant account,	\$45,263,512 56
Telephones,	10,154,513 88
Securities of other companies,	223,017,194 20
Patent account,	292,987 35
Current assets: —	
Cash on hand,	\$19,314,829 65
Bills and accounts receivable,	77,759,763 31
Supplies on hand,	501,761 85
Total current assets,	97,576,354 81
Treasury bonds,	1,357,600 00
Treasury stocks,	27,110,400 00
Discount,	1,050,000 00
Total debits,	\$405,822,562 80

<i>Liabilities.</i>	<i>Items.</i>	<i>Totals.</i>
Capital stock,		\$180,587,000 00
Bonded debt,		159,011,000 00
Current liabilities: —		
Loans and notes payable,	\$25,006,000 00	
Accounts payable,	641,929 81	
Dividends payable,	3,072,558 50	
Total current liabilities,		28,720,488 31
Accrued liabilities: —		
Interest accrued but not due,	\$3,199,872 54	
Taxes accrued but not due,	37,287 37	
Rentals accrued but not due,	37,042 00	
Miscellaneous accrued liabilities,	570,732 24	
Total accrued liabilities,		3,844,934 15
Sinking and other special funds: —		
Tax reserve,	\$123,490 71	
Reserve for depreciation,	18,413,533 34	
Total sinking and other special funds,		18,537,024 05
Total liabilities,		\$390,700,446 51
Profit and loss balance, surplus,		15,122,116 29
Total credits,		\$405,822,562 80

STATISTICAL INFORMATION. — OVERHEAD, UNDERGROUND AND SUBMARINE
SYSTEM IN MASSACHUSETTS.

Underground system: —

Conduit, feet,	109,148
Duct, feet,	694,636
Cable, feet,	219,187
Wire, feet,	36,316,558

Submarine system: —

Cable, feet,	4,152
Wire, feet,	113,886

Overhead system: —

Pole line, miles,	522.66
Iron wire, miles,	231.01
Copper wire, miles,	16,632.86

NOTE. — "No exchange service is given by this company. The business of this company consists of the furnishing of lines and facilities to enable the transmission of intelligence, through the exchanges of other telephone companies, between the subscribers and patrons of one of such companies and those of another. The traffic carried on over its lines is almost entirely interstate."

AUTOMATIC TELEPHONE COMPANY OF NEW BEDFORD.

Location of principal business office: 41 William Street, New Bedford, Mass.

Date of incorporation: Nov. 28, 1898.

State where incorporated: Massachusetts.

Date of annual meeting: second Monday in March.

Date of organization: Nov. 12, 1898.

Date when company began to give service: Dec. 1, 1900.

Service is given by this company over its own lines in the city of New Bedford, Mass.

GENERAL OFFICERS AND OFFICIAL TITLES.

Francis T. Akin,	<i>President.</i>
Lot B. Bates,	<i>Vice-President.</i>
Frederic Taber,	<i>Treasurer.</i>
Arthur E. Perry,	<i>Clerk.</i>
Clarence H. James,	<i>Assistant Treasurer.</i>
William R. Binkley,	<i>Superintendent.</i>

DIRECTORS AND RESIDENCES.

Francis T. Akin,	New Bedford, Mass.
Lot B. Bates,	New Bedford, Mass.
Frederic Taber,	New Bedford, Mass.
Arthur E. Perry,	New Bedford, Mass.
Edward D. Sherman,	New Bedford, Mass.
Frederick W. Besse,	New Bedford, Mass.
Thomas Hersom,	New Bedford, Mass.
Samuel C. Hunt,	New Bedford, Mass.
William C. Hawes,	New Bedford, Mass.

CAPITAL.

Capital authorized by charter,	\$100,000 00
Capital authorized by vote of company,	200,000 00
Capital paid in, 3,000 shares; par value, \$50,	150,000 00
Whole number of stockholders,	152
Number of stockholders resident in Massachusetts,	148
Amount of stock held in Massachusetts (shares),	2,973

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 11, 1903,	Dec. 11, 1903,	-	-	\$500 00
June 10, 1908,	Dec. 10, 1908,	-	6	6,500 00
July 3, 1907,	July 3, 1908,	-	5	1,959 34
Jan. 10, 1908,	July 10, 1908,	-	6	1,500 00
Jan. 10, 1908,	July 10, 1908,	-	6½	6,000 00
Jan. 13, 1908,	July 13, 1908,	-	6½	5,000 00
Feb. 6, 1908,	Aug. 6, 1908,	-	6	10,000 00
Feb. 8, 1908,	Aug. 8, 1908,	-	6	10,000 00
March 24, 1908,	Sept. 24, 1908,	-	6	500 00
March 25, 1908,	Sept. 25, 1908,	-	6	500 00
March 27, 1908,	Sept. 27, 1908,	-	6	3,250 00
March 30, 1908,	Sept. 30, 1908,	-	6	500 00
April 2, 1908,	Oct. 2, 1908,	-	6	1,200 00
April 1, 1908,	Oct. 1, 1908,	-	6	2,000 00
April 1, 1908,	Oct. 1, 1908,	-	6	1,500 00
May 12, 1908,	Nov. 12, 1908,	-	5½	10,000 00
May 20, 1908,	Nov. 20, 1908,	-	6	1,000 00
May 28, 1908,	Nov. 28, 1908,	-	6	10,000 00
Total amount of bonds and notes,				\$71,909 34
Capital paid in,				150,000 00
Total liability for capital and loans,				\$221,909 34

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$32,115 22
Less rebates and discounts,		1,739 62
		<hr/>
Revenue from operation,		\$30,375 60
General expense,	\$4,157 97	
Operating expense,	6,268 86	
Current repair,	2,252 39	
Other expenses,	824 83	
Total expenses,	<hr/>	13,504 05
		<hr/>
Net revenue from operation,		\$16,871 55
Interest on deposit,		17 34
		<hr/>
Total income above expense,		\$16,888 89
Interest on floating debt,		4,873 51
		<hr/>
Net divisible income,		\$12,015 38
Dividends declared, 6 per cent.,		9,000 00
		<hr/>
Surplus for year ending June 30, 1908,		\$3,015 38

EARNINGS.

Exchange service:—		
Subscribers' rentals,		\$32,115 22
Less rebates and discounts,		1,739 62
		<hr/>
Revenue from operation,		\$30,375 60
Other miscellaneous income,		17 34
		<hr/>
Total gross earnings and income,		\$30,392 94

EXPENSES.

General expense:—		
Salaries of officers,	\$1,200 00	
Salaries of others,	60 00	
Rent, light and heat,	249 94	
Directory,	123 90	
Postage, printing and stationery,	324 21	
Taxes,	1,574 02	
Legal,	36 81	
Damages and compensation,	2 33	
Insurance,	217 68	
Incidental,	369 08	
Total general expense,	<hr/>	\$4,157 97
Operating:—		
Superintendence,	\$1,087 45	
Wages of operators,	390 00	
Wages of others,	2,567 25	
Rent, light, heat and power,	352 70	
Postage, printing and stationery,	30 10	
		<hr/>
Amounts carried forward,	\$4,427 50	\$4,157 97

	Items.	Totals.
<i>Amounts brought forward,</i>	\$4,427 50	\$4,157 97
Operating — <i>Con.</i>		
Advertising, canvassing and collecting,	1,298 25	
Incidental,	543 11	
Total operating expense,	—————	6,268 86
Current repair: —		
Exchange overhead lines,	\$962 12	
Exchange underground lines,	900 75	
Central office equipment,	15 56	
Subscribers' equipment,	264 74	
Incidental,	109 22	
Total maintenance expense,	—————	2,252 39
Real estate expense,		824 83
Total of all operating expenses,		\$13,504 05

GENERAL BALANCE SHEET.

Assets.

Exchange construction: —		
Overhead lines,	\$62,288 12	
Underground lines,	63,813 47	
Central office equipment,	42,116 14	
Subscribers' station equipment,	41,642 13	
Total exchange construction and equipment,	—————	\$209,859 86
Toll construction: —		
Overhead lines,		3,746 80
Real estate required for operation,		13,000 00
Total plant account,		\$226,606 66
Licenses,		25,000 00
Current assets: —		
Cash on hand,	\$1,070 31	
Bills and accounts receivable,	7,086 29	
Total current assets,	—————	8,156 60
Total debits,		\$259,763 26

Liabilities.

Capital stock, common,	\$100,000 00	
Capital stock, preferred,	50,000 00	
Total capital stock,	—————	\$150,000 00
Current liabilities: —		
Loans and notes payable,	\$71,909 34	
Audited vouchers and accounts,	3,201 89	
Total current liabilities,	—————	75,111 23
Sinking and other special funds: —		
Depreciation,		5,000 00
Total liabilities,		\$230,111 23
Profit and loss balance, surplus,		29,652 03
Total credits,		\$259,763 26

PROFIT AND LOSS ACCOUNT.					Dr.	Cr.
Balance from previous year,	.	.	.	.	.	\$26,636 65
Gross earnings from operation,	.	.	.	.	.	32,115 22
Miscellaneous income,	.	.	.	.	.	17 34
Operating expenses,	.	.	.	.	\$13,504 05	
Rebates and discounts,	.	.	.	.	1,739 62	
Interest on floating debt,	.	.	.	.	4,873 51	
Dividends declared on stock,	.	.	.	.	9,000 00	
Balance, surplus,	.	.	.	.	29,652 03	
					<hr/>	
					\$58,769 21	\$58,769 21

PROPERTY ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

Additions.

Exchange construction:—	Items.	Totals.
Overhead lines,	\$4,332 60	
Underground lines,	2,989 47	
Central office equipment,	5,456 14	
Subscribers' station equipment,	2,412 13	
Total exchange construction and equipment, —————		\$15,190 34
		<hr/>
Total additions,		\$15,190 34

Deductions.

Real estate charged into real estate expense,	\$288 06	
Toll line expense,	12 68	
Total deductions,	<hr/>	300 74
		<hr/>
Net additions to property account for the year,		\$14,889 60

STATISTICAL INFORMATION.

Number of subscribers,	1,244
Number of instruments,	1,278
Number of operators,	1
Number of subscribers on party lines,	167
Number of subscribers on single lines,	1,077
Underground system:—	
Conduit, feet,	18,480
Duct, feet,	135,120
Cable, feet,	58,080
Wire, feet,	9,715,200
Overhead system:—	
Pole line, miles,	32
Iron wire, miles,	334
Copper wire, miles,	61
Copper wire in aerial cables, feet,	3,403,200

NOTE.—“The Automatic Telephone Company of New Bedford and the Fall River Automatic Telephone Company jointly operate a toll line between Fall River and New Bedford, the entire account of same being kept by the Fall River Company. The only item appearing on our books is the original cost of construction, viz., \$3,746.80.”

BERNARDSTON AND GILL TELEPHONE COMPANY.

Location of principal business office: Bernardston, Mass.

Date when company began to give service: Feb. 1, 1903.

Service is given by this company over its own lines in the towns of Bernardston, Gill and Leyden.

GENERAL OFFICERS.

A. H. and C. R. Nelson, *Owners.*

CAPITAL.

Capital paid in, \$4,000 00

EARNINGS AND EXPENSES.

Gross earnings, \$1,577 00

Expenses, 497 00

Net earnings, \$1,080 00

GENERAL BALANCE SHEET.

Assets.

Property accounts, \$4,000 00

Bills and accounts receivable, 100 00

Supplies on hand, 5 00

Total debits, \$4,105 00

Liabilities.

Capital stock, \$4,105 00

Total credits, \$4,105 00

STATISTICAL INFORMATION.

Number of subscribers, 118

Number of instruments, 125

Number of operators, 3

Number of pay stations, 5

Number of subscribers on party lines, 118

Overhead system: —

Pole line, miles, 43

Iron wire, miles, 115

CAPE COD TELEPHONE COMPANY.

Location of principal business office: Hyannis, Mass.

Date of incorporation: 1903.

State where incorporated: Massachusetts.

Date of annual meeting: first week day in September.

Date of organization: 1903.

Date when company began to give service: 1903.

Service is given by this company over its own lines in the town of Barnstable, Mass.

GENERAL OFFICERS AND OFFICIAL TITLES.

Frank Percy Goss, *President.*

Alfred Willard Guyer, *Vice-President.*

Arthur Gordon Guyer, *Clerk and Treasurer.*

DIRECTORS AND RESIDENCES.

Frank Percy Goss,	Hyannis, Mass.
Alfred Willard Guyer,	Hanover, N. H.
Arthur Gordon Guyer,	Hyannis, Mass.

CAPITAL.

Capital authorized by charter,	\$1,000 00
Capital authorized by vote of company,	5,000 00
Capital paid in, 240 shares; par value, \$25,	6,000 00
Whole number of stockholders,	15
Number of stockholders resident in Massachusetts,	14
Amount of stock held in Massachusetts (shares),	239

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Jan. 20, 1908,	July 20, 1908,	Not secured,	6	\$300 00
Feb. 15, 1908,	Aug. 15, 1908,	Not secured,	5½	200 00
April 21, 1908,	Oct. 21, 1908,	Not secured,	6	300 00
April 25, 1908,	Oct. 25, 1908,	Not secured,	6	200 00
June 5, 1908,	Dec. 5, 1908,	Not secured,	6	400 00
June 27, 1908,	Dec. 27, 1908,	Not secured,	6	200 00
Total amount of bonds and notes,				\$1,600 00
Capital paid in,				6,000 00
Total liability for capital and loans,				\$7,600 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Revenue from operation,		\$2,963 91
General expense,	\$914 30	
Operating expense,	462 17	
Current repair,	236 31	
Total expenses,		1,612 78
Net revenue from operation,		\$1,351 13
Fixed charges: —		
Interest on floating debt,		95 00
Surplus of net income above fixed charges,		\$1,256 13
Dividends: —		
Dividends declared, 6 per cent.,		360 00
Surplus for year ending June 30, 1908,		\$896 13

EARNINGS.		
	Items.	Totals.
Exchange service: —		
Subscribers' rentals,	\$2,921 48	
Pay station local tolls,	42 43	
Total gross earnings and income,		\$2,963 91

EXPENSES.		
General expense: —		
Salaries of officers (manager),	\$550 00	
Rent, light and heat,	100 00	
Travelling,	50 00	
Postage, printing and stationery,	20 35	
Directory,	28 00	
Taxes,	103 33	
Incidental,	62 62	
Total general expense,		\$914 30
Operating: —		
Wages of operators,		462 17
Current repair: —		
Exchange overhead lines,		236 31
Total of all operating expenses,		\$1,612 78

GENERAL BALANCE SHEET.

Assets.		
Exchange construction: —		
Overhead lines,	\$5,600 00	
Central office equipment,	200 00	
Subscribers' station equipment,	1,800 00	
Total exchange construction and equipment,		\$7,600 00
Current assets: —		
Cash on hand,	\$129 11	
Supplies on hand,	300 00	
Total current assets,		429 11
Total debits,		\$8,029 11
Liabilities.		
Capital stock,		\$6,000 00
Current liabilities: —		
Loans and notes payable,	\$1,600 00	
Miscellaneous,	200 00	
Total current liabilities,		1,800 00
Total liabilities,		\$7,800 00
Profit and loss balance, surplus,		229 11
Total credits,		\$8,029 11

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$273 78
Gross earnings from operation,		2,963 91
Amount carried forward,		\$3,237 69

	Dr.	Cr.
<i>Amount brought forward,</i>		\$3,237 69
Operating expenses,	\$1,612 78	
Interest on floating debt,	95 00	
Depreciation overhead lines,	490 80	
Depreciation subscribers' station equipment,	400 00	
Depreciation supplies,	50 00	
Dividends,	360 00	
Balance, surplus,	229 11	
	<hr/>	<hr/>
	\$3,237 69	\$3,237 69

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

Exchange construction:—

Overhead lines,	\$290 80
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Additions to property account for the year,	\$290 80
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STATISTICAL INFORMATION.

Number of subscribers,	239
Number of instruments,	241
Number of operators,	3
Number of pay stations,	6
Number of subscribers on party lines,	238
Number of subscribers on single lines,	1
Overhead system:—	
Pole line, miles,	35
Iron wire, miles,	214

COLUMBIA AND RENSSELAER TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: West Lebanon, N. Y.

Date of incorporation: March, 1894.

State where incorporated: New York.

Date of annual meeting: July 5.

Date of organization: March, 1894.

Date when company began to give service: March, 1894.

Service is given by this company over its own lines in the town of Hancock, Mass., and in the State of New York.

GENERAL OFFICERS AND OFFICIAL TITLES.

Abner S. Haight,	<i>President.</i>
Warren Fowler,	<i>Vice-President.</i>
Mary J. Fowler,	<i>Secretary and Treasurer.</i>
Warren Fowler,	<i>Manager.</i>

DIRECTORS AND RESIDENCES.

Abner S. Haight,	49 Leonard Street, New York, N. Y.
Warren Fowler,	West Lebanon, N. Y.
Harriet E. Haight,	8 Spencer Place, Brooklyn, N. Y.
Mary J. Fowler,	West Lebanon, N. Y.
Frederick E. Haight,	49 Leonard Street, New York, N. Y.
May F. Fowler,	West Lebanon, N. Y.

CAPITAL.

Capital paid in,	\$1,000 00
Number of stockholders,	5
Number of stockholders resident in Massachusetts,	None.

DEBTS.

Amount of notes outstanding,	\$4,450 00
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EARNINGS AND EXPENSES.

Gross earnings: ¹ —	
Exchange service,	\$6,125 98
Toll service,	2,418 56
Miscellaneous earnings,	495 96
Total gross earnings,	\$9,040 50
Expenses,	6,513 26
Net earnings,	\$2,527 24
Interest payments,	93 00
Surplus for the year,	\$2,434 24

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$19,465 44
Bills and accounts receivable,	1,538 02
Supplies on hand,	5,910 00
Cash on hand,	292 71
Total debits,	\$27,206 17

Liabilities.

Capital stock,	\$1,000 00
Bills and accounts payable,	5,799 85
Surplus,	20,406 32
Total credits,	\$27,206 17

STATISTICAL INFORMATION.

Number of subscribers,	540
Number of instruments,	552
Number of operators,	10
Number of pay stations,	10
Number of subscribers on party lines,	540
Overhead system: —	
Pole line, miles,	110
Iron wire, miles,	640

¹ "The total gross income from State of Massachusetts, as far as we can make it is \$153.50 for year ending June 30, 1908."

DEERFIELD VALLEY TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 119 Milk Street, Boston, Mass.

Date of incorporation: April 14, 1906.

State where incorporated: Massachusetts.

Date of annual meeting: first Thursday in February.

Date of organization: April 14, 1906.

Date when company began to give service: April, 1906.

Service is given by this company in Massachusetts over its own lines in the following cities and towns: —

Ashfield,	Colrain,	Monroe,
Buckland,	Conway,	Shelburne.
Charlemont,		

This company also gives service in the State of Vermont.

GENERAL OFFICERS AND OFFICIAL TITLES.

Jasper N. Keller,	. . . . .	<i>President.</i>
Fred. W. Story,	. . . . .	<i>Vice-President.</i>
Edmund S. Willard,	. . . . .	<i>Treasurer.</i>
Edmund W. Longley,	. . . . .	<i>Auditor.</i>
George M. Bemis,	. . . . .	<i>General Manager and Local Manager.</i>
Edward A. Wilkie,	. . . . .	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Hal T. Goodell,	. . . . .	Readsboro, Vt.
Frank K. Gould,	. . . . .	Monroe Bridge, Mass.
Francis A. Houston,	. . . . .	Concord, Mass.
Matt. B. Jones,	. . . . .	Newton, Mass.
Jasper N. Keller,	. . . . .	Surry, N. H.
Carl T. Keller,	. . . . .	Boston, Mass.
George W. Kentfield,	. . . . .	Wilmington, Vt.
Charles D. Noyes,	. . . . .	Colrain, Mass.
Fred. W. Story,	. . . . .	Laconia, N. H.

CAPITAL.

Capital authorized by charter,	. . . . .	\$15,000 00
Capital authorized by vote of company,	. . . . .	15,000 00
Capital paid in, 600 shares; par value, \$25,	. . . . .	15,000 00

Whole number of stockholders,	. . . . .	12
Number of stockholders resident in Massachusetts,	. . . . .	6
Amount of stock held in Massachusetts (shares),	. . . . .	11
Amount of stock held by New England Telephone and Telegraph Company (shares),	. . . . .	584

DEBTS.

Bonds or notes issued: —

This company has no bonds or notes outstanding.

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation,		\$10,660 74
Less rebates and discounts,		90 29
Revenue from operation, ¹		\$10,570 45
General expense,	\$591 52	
Operating expense,	4,493 17	
Current repair,	2,315 53	
Reconstruction,	84 50	
Instrument rentals,	553 55	
Other expenses,	109 99	
Total expenses,		8,148 26
Net revenue from operation,		\$2,422 19
Fixed charges:—		
Interest on floating debt,		866 90
Surplus for year ending June 30, 1908,		\$1,555 29

EARNINGS (WHOLE SYSTEM).

Exchange service:—		
Subscribers' rentals,	\$6,901 39	
Pay station local tolls,	178 01	
Terminal charges on long-distance business,	410 28	
Total exchange service,		\$7,489 68
Toll service:—		
Toll service,	\$3,172 35	
Leased line rental,	21 29	
Total toll service,		3,171 06
Total gross earnings from operation,		\$10,660 74
Less rebates and discounts,		90 29
Total gross earnings and income,		\$10,570 45

EXPENSES (WHOLE SYSTEM).

General expense: ² —		
Postage, printing and stationery,	\$176 07	
Directory,	13 00	
Taxes,	394 09	
Incidental,	8 36	
Total general expense,		\$591 52
Operating:—		
Superintendence,	\$1,038 42	
Wages of operators,	1,855 32	
Wages of others,	648 00	
Rent, light and heat,	386 28	
Amounts carried forward,	\$3,928 02	\$591 52

¹ Revenue from operation in Massachusetts, \$4,727. 61.² Debit item.³ See note, page 194.

	Items.	Totals.
<i>Amounts brought forward,</i>	\$3,928 02	\$591 52
Operating — <i>Con.</i>		
Postage, printing and stationery,	130 49	
Advertising and canvassing,	106 61	
Incidental,	328 05	
Total operating expense,		4,493 17
Current repair,		2,315 53
Instrument rentals: —		
Exchange,		553 55
Messenger expense,		1 05
Conduit, pole and roof rent,		108 94
Total expenses, not including charges for reconstruction, . .		\$8,063 76
Reconstruction items charged to expense,		84 50
Total of all operating expenses,		\$8,148 26

GENERAL BALANCE SHEET.

<i>Assets.</i>		
Exchange construction,		\$24,878 23
Office furniture and fixtures,		11 45
Tools and teams,		133 89
Total plant account,		\$25,023 57
Current assets: —		
Cash on hand,	\$777 42	
Bills and accounts receivable,	2,197 81	
Total current assets,		2,975 23
Total debits,		\$27,998 80
<i>Liabilities.</i>		
Capital stock,		\$15,000 00
Current liabilities: —		
Audited vouchers and accounts,		12,200 37
Total liabilities,		\$27,200 37
Profit and loss balance, surplus,		798 43
Total credits,		\$27,998 80

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,	\$756 86	
Gross earnings from operation,		\$10,660 74
Operating expenses, including charges on account of reconstruction,	8,148 26	
Rebates and discounts,	90 29	
Interest on floating debt,	866 90	
Balance, surplus,	798 43	
	\$10,660 74	\$10,660 74

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

	Items.	Totals.
Exchange construction,	\$1,586 23	
Central office equipment,	32 54	
Subscribers' station equipment,	815 53	
Total exchange construction and equipment, _____		\$2,434 30
Additions to other permanent property: —		
Office furniture,		11 45
Tools and teams,		21 12
Total additions,		\$2,466 87

STATISTICAL INFORMATION.

	In Massachusetts.	Outside Massachusetts.	Whole System.
Number of subscribers,	204	210	414
Number of stations,	220	216	436
Number of operators,	3	3	6
Number of pay stations,	16	6	22
Number of subscribers on party lines,	195	208	403
Number of subscribers on single lines,	9	2	11
Overhead system: —			
Pole line, miles,	56	67	123
Iron wire, miles,	206	272	478
Copper wire, miles,	39	4	43

NOTE. — "It will be noted that there is no charge against salaries of officers. The only officer who receives a salary is the general manager, whose duties are mainly in the line of those of an exchange manager, and his salary for that reason has been charged to the operating account."

FALL RIVER AUTOMATIC TELEPHONE COMPANY.

Location of principal business office: 215 Bank Street, Fall River, Mass.

Date of incorporation: Dec. 8, 1899.

State where incorporated: Massachusetts.

Date of annual meeting: second Monday in April.

Date of organization: Dec. 7, 1899.

Date when company began to give service: Oct. 1, 1901.

Service is given by this company over its own lines in the city of Fall River, Mass., and in the State of Rhode Island.¹

GENERAL OFFICERS AND OFFICIAL TITLES.

Edward B. Jennings,	<i>President.</i>
Bradford D. Davol,	<i>Treasurer.</i>
William R. Binkley,	<i>Superintendent.</i>
Clark Chase, Jr.,	<i>Manager and Assistant Treasurer.</i>

¹ Five instruments are located in the State of Rhode Island.

DIRECTORS AND RESIDENCES.

Edward B. Jennings, . . .	547 High Street, Fall River, Mass.
Edmund W. Wakelee, . . .	Englewood, N. J.
John T. Swift, . . .	294 French Street, Fall River, Mass.
Philip A. Mathewson, . . .	139 Rock Street, Fall River, Mass.
Joseph Watters, . . .	132 Highland Avenue, Fall River, Mass.
Martin Feeney, . . .	512 Cherry Street, Fall River, Mass.
Bradford D. Davol, . . .	242 Lincoln Avenue, Fall River, Mass.

CAPITAL.

Capital authorized by charter,	\$135,000 00
Capital authorized by vote of company,	135,000 00
Capital paid in, 2,700 shares; par value, \$50,	135,000 00
Whole number of stockholders,	67
Number of stockholders resident in Massachusetts,	65
Amount of stock held in Massachusetts (shares),	1,924

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 1, 1903,	June 1, 1923,	Mortgage on land, buildings, licenses, franchise and property.	5	\$65,000 00
Total amount of bonds and notes,				\$65,000 00
Capital paid in,				135,000 00
Total liability for capital and loans,				\$200,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,	\$30,933 00	
Less rebates and discounts,	215 73	
Revenue from operation,		\$30,717 27
General expense,	\$7,630 13	
Operating expense,	2,672 34	
Current repair,	7,477 81	
Reconstruction,	1,250 25	
Total expenses,		19,030 53
Net revenue from operation,		\$11,686 74
Miscellaneous income:—		
Interest on bank deposit,		254 03
Total income above expenses,		\$11,940 77
Fixed charges:—		
Interest on funded debt,		3,250 00
Surplus of net income above fixed charges,		\$8,690 77
Sinking fund payments:—		
Depreciation,		4,055 59
Net divisible income,		\$4,635 18
Dividends, 3 per cent. on \$135,000,		4,050 00
Surplus for year ending June 30, 1908,		\$585 18

EARNINGS.			
	Items.	Totals.	
Exchange service: —			
Subscribers' rentals,	\$30,095 04		
Pay station local tolls,	176 40		
Leased line rentals,	90 00		
Total exchange service,		\$30,361 44	
Toll service,		571 56	
<hr/>			
Total gross earnings from operation,		\$30,933 00	
Less rebates and discounts,		215 73	
<hr/>			
Revenue from operation,		\$30,717 27	
Miscellaneous income: —			
Interest on bank deposit,		254 03	
<hr/>			
Total gross earnings and income,		\$30,971 30	

EXPENSES.			
General expense: —			
Salaries of officers,	\$2,490 80		
Salaries of others,	780 00		
Wages of clerks,	834 31		
Rent, light and heat,	409 59		
Travelling,	448 92		
Postage, printing and stationery,	187 37		
Directory,	228 62		
Taxes,	1,379 05		
Insurance,	195 84		
Incidental,	675 63		
Total general expense,		\$7,630 13	
Operating: —			
Wages of operators,	\$1,096 60		
Wages of others,	1,248 00		
Rent, light and heat,	282 74		
Advertising and canvassing,	45 00		
Total operating expense,		2,672 34	
Current repair: —			
Exchange overhead lines,	\$3,207 82		
Exchange underground lines,	524 51		
Central office equipment,	158 06		
Subscribers' equipment,	3,490 13		
Toll overhead lines,	55 45		
Incidental,	41 84		
Total maintenance expense,		7,477 81	
<hr/>			
Total expense, not including charges to reconstruction,		\$17,780 28	
Reconstruction items charged to expense: —			
Exchange overhead lines,		1,250 25	
<hr/>			
Total of all operating expenses,		\$19,030 53	

GENERAL BALANCE SHEET.

<i>Assets.</i>			
	Items.	Totals.	
Exchange construction:—			
Overhead lines,	\$59,333 55		
Underground lines,	72,352 87		
Subscribers' station equipment,	58,475 73		
Total exchange construction and equipment, —————		\$190,162 15	
Toll construction:—			
Overhead lines,		3,746 80	
Real estate required for operation,		10,893 00	
Tools and teams,		280 00	
Total plant account,		\$205,081 95	
Contracts and licenses,		33,750 00	*
Current assets:—			
Cash on hand,	\$7,468 64		
Bills and accounts receivable,	3,543 00		
Unexpired insurance,	155 36		
Total current assets,	—————	11,167 00	
Total debits,		\$249,998 95	
<i>Liabilities.</i>			
Capital stock,		\$135,000 00	
Bonded debt,		65,000 00	
Current liabilities:—			
Audited vouchers and accounts,	\$247 38		
Salaries and wages, unpaid,	298 38		
Total current liabilities,	—————	545 76	
Accrued liabilities:—			
Interest accrued but not due,	\$270 83		
Taxes accrued but not due,	880 23		
Total accrued liabilities,	—————	1,151 06	
Sinking and other special funds:—			
Reserve for depreciation,		24,717 70	
Total liabilities,		\$226,414 52	
Profit and loss balance, surplus,		23,584 43	
Total credits,		\$249,998 95	

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$22,999 25
Gross earnings from operation,		30,933 00
Miscellaneous income,		254 03
Operating expenses, including charges on account		
of reconstruction,	\$19,030 53	
Rebates and discounts,	215 73	
Interest on funded debt,	3,250 00	
Depreciation,	4,055 59	
Dividends declared,	4,050 00	
Balance, surplus,	23,584 43	
	—————	—————
	\$54,186 28	\$54,186 28

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

Exchange construction:—	Items.	Totals.
Overhead lines,	\$1,126 08	
Underground lines,	729 85	
Subscribers' station equipment,	799 70	
Total exchange construction and equipment, —————		\$2,655 63

STATISTICAL INFORMATION.

Number of subscribers,	1,125
Number of instruments,	1,165
Number of operators,	2
Number of pay stations,	13
Number of subscribers on party lines,	168
Number of subscribers on single lines,	957
Underground system:—	
Conduit, feet,	18,691.20
Duct, feet,	101,798.40
Cable, feet,	56,971.20
Wire, feet,	10,901,088.00
Overhead system:—	
Pole line, miles,	55.60
Iron wire, miles,	397.18
Copper wire, miles,	1,093.31

HEATH TELEPHONE COMPANY.

Location of principal business office: Shelburne Falls, Mass.

Date of incorporation: Feb. 14, 1898.

State where incorporated: Massachusetts.

Date of annual meeting: second Monday in October.

Date of organization: 1895.

Date when company began to give service: 1895.

Cities and towns in Massachusetts in which service is given by this company over its own lines:—

Ashfield,	Conway,	Leyden,
Buckland,	Greenfield,	Rowe,
Charlemont,	Hawley,	Shelburne,
Colrain,	Heath,	Whately.

Service is also given by this company in Halifax and Whitingham in the State of Vermont.

GENERAL OFFICERS AND OFFICIAL TITLES.

Walter E. Kinsman,	<i>President.</i>
Fred L. Totman,	<i>Vice-President.</i>
Herbert Newell,	<i>Clerk and Treasurer.</i>
Walter E. Kinsman,	<i>General Manager.</i>

DIRECTORS AND RESIDENCES.

Walter E. Kinsman,	Heath, Mass.
Fred L. Totman,	Conway, Mass.
Alexander J. Patterson,	Conway, Mass.
William A. Barber,	Leyden, Mass.
Fred H. Smith,	Ashfield, Mass.
Herbert Newell,	Shelburne Falls, Mass.

CAPITAL.

Capital authorized by charter,	\$1,020 00
Capital authorized by vote of company,	66,000 00
Capital paid in, 1,746 shares; par value, \$30,	52,380 00
Whole number of stockholders,	337
Number of stockholders resident in Massachusetts,	294
Amount of stock held in Massachusetts (shares),	1,550

DEBTS.

Bonds or notes issued, viz.: —

DATE.	When due.	How secured.	Rate of Interest. (Per Cent.).	Amount.
April 1, 1908,	Demand, . . .	By directors,	5	\$2,000 00
Oct. 1, 1907,	Demand, . . .	By directors,	5	6,000 00
Total amount of bonds and notes,				\$8,000 00
Capital paid in,				52,380 00
Total liability for capital and loans,				\$60,380 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation,	\$12,528 73	
Less rebates and discounts,	16 12	
Revenue from operation, ¹		\$12,512 61
General expense,	\$1,479 02	
Operating expense,	4,196 53	
Current repair,	3,280 54	
Reconstruction,	1,503 55	
Total expenses,		10,459 64
Net revenue from operation,		\$2,052 97
Fixed charges: —		
Interest on floating debt,		406 83
Surplus of net income above fixed charges,		\$1,646 14
Dividends declared, 6 per cent.,		2,877 69
Deficit for year ending June 30, 1908,		\$1,231 55

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation: —	
Exchange service: —	
Subscribers' rentals,	\$11,516 91
Pay station local tolls,	827 50
Miscellaneous exchange earnings,	137 82
Total exchange service,	\$12,482 23
Conduit, pole and roof rent,	46 50
Total gross earnings from operation,	\$12,528 73
Less rebates and discounts,	16 12
Revenue from operation,	\$12,512 61

¹ Revenue from operation in Massachusetts: —

Gross earnings from operation,	\$11,414 78
Less rebates and discounts,	16 12
Revenue from operation,	\$11,398 66

EXPENSES (WHOLE SYSTEM).

	Items.	Totals.
General expense:—		
Salaries of officers,	\$675 90	
Travelling,	53 47	
Postage, printing and stationery,	30 87	
Directory,	9 95	
Taxes,	660 52	
Legal,	39 31	
Incidental,	10 00	
Total general expense,		\$1,479 02
Operating:—		
Superintendence,	\$180 44	
Wages of operators,	3,351 22	
Wages of others,	505 60	
Rent, light and heat,	128 27	
Postage, printing and stationery,	31 00	
Total operating expense,		4,196 53
Current repair:—		
Exchange overhead lines,	\$1,635 55	
Central office equipment,	212 58	
Subscribers' equipment,	1,432 41	
Total maintenance expense,		3,280 54
Total expenses, not including charges to reconstruction,		\$8,956 09
Reconstruction items charged to expense:—		
Exchange overhead lines,	\$1,418 24	
Central office equipment,	53 58	
Subscribers' station equipment,	31 73	
Total of reconstruction items charged to expense,		1,503 55
Total of all operating expenses,		\$10,459 64

GENERAL BALANCE SHEET.

Assets.

Exchange construction:—		
Right of way,	\$844 80	
Overhead lines,	45,073 66	
Central office equipment,	1,414 60	
Subscribers' station equipment,	12,844 15	
Total exchange construction and equipment,		\$60,177 21
Office furniture and fixtures,		19 75
Tools and teams,		274 13
Repair shop,		37 70
Total plant account,		\$60,508 79
Current assets:—		
Cash on hand,	\$536 88	
Bills and accounts receivable,	1,150 58	
Supplies on hand,	824 01	
Total current assets,		2,511 47
Total debits,		\$63,020 26

<i>Liabilities.</i>	<i>Items.</i>	<i>Totals.</i>
Capital stock,		\$52,380 00
Current liabilities:—		
Loans and notes payable,	\$8,350 00	
Salaries and wages unpaid,	300 00	
Miscellaneous current liabilities,	618 00	
Total current liabilities,		9,268 00
Total liabilities,		\$61,648 00
Profit and loss balance, surplus,		1,372 26
Total credits,		\$63,020 26

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,		\$2,513 81
Gross earnings from operation,		12,528 73
Premium account,		90 00
Operating expenses, including charges on account		
of reconstruction,	\$10,459 64	
Rebates and discounts,	16 12	
Interest on floating debt,	406 83	
Dividends declared on stock,	2,877 69	
Balance, surplus,	1,372 26	
	\$15,132 54	\$15,132 54

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

	<i>Items.</i>	<i>Totals.</i>
Exchange construction:—		
Overhead lines,	\$3,065 61	
Central office equipment,	35 15	
Subscribers' station equipment,	1,222 12	
Additions to property account for the year,		\$4,322 88

STATISTICAL INFORMATION.

	<i>In Massachusetts.</i>	<i>Outside Massachusetts.</i>	<i>Whole System.</i>
Number of subscribers,	827	90	917
Number of instruments,	843	90	933
Number of operators,	10	1	11
Number of pay stations,	22	2	24
Number of subscribers on party lines,	824	90	914
Number of subscribers on single lines,	3	—	3
Overhead system:—			
Pole line, miles,	—	—	264
Iron wire, miles,	—	—	1,090

THE HIGHLAND TELEPHONE COMPANY.

Location of principal business office: Cooleyville, Mass.

State where incorporated: Massachusetts.

Date of annual meeting: May 4.

Date of organization: May 22, 1908.

Date when company began to give service: May 22, 1908.

Service is given by this company over its own lines in the towns of Leverett, New Salem, Prescott and Shutesbury.

GENERAL OFFICERS AND OFFICIAL TITLES.

Willard Putnam,	<i>President.</i>
Rawson King,	<i>Secretary and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Willard Putnam,	Cooleyville, Mass.
Rawson King,	Cooleyville, Mass.
Martha E. King,	Cooleyville, Mass.

CAPITAL.

Capital paid in,	\$5,000 00
Number of stockholders,	4
Number of stockholders resident in Massachusetts,	4
Amount of notes outstanding,	\$800 00

EARNINGS.

Gross earnings:—

Exchange service,	\$1,483 00
Toll service,	25 00
Miscellaneous earnings,	632 35
Total gross earnings,	\$2,140 35

GENERAL BALANCE SHEET.

Assets

Property accounts,	\$5,800 00
Bills and accounts receivable,	593 00
Supplies on hand,	25 00
Cash on hand,	165 50
Total debits,	\$6,583 50

Liabilities.

Capital stock,	\$5,000 00
Note,	800 00
Bills and accounts payable,	145 00
Surplus,	638 50
Total credits,	\$6,583 50

STATISTICAL INFORMATION.

Number of subscribers,	130
Number of instruments,	135
Number of operators,	1
Number of subscribers on party lines,	130
Overhead system: —	
Pole line, miles,	50
Iron wire, miles,	200

NOTE. — “We find that during the year considerable addition was made to the poles and wires of this company, and that it is impossible to distinguish in some cases expenses for operation and expenses for new lines.”

MASSACHUSETTS TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 185 Franklin Street, Boston, Mass.

Date of incorporation: about Nov. 15, 1898.

State where incorporated: Massachusetts.

Date of annual meeting: first Monday in November.

Date of organization: Nov. 21, 1898.

Date when company began to give service: 1899.

Service is given by this company over its own lines in Boston, Stoughton and Taunton.

GENERAL OFFICERS AND OFFICIAL TITLES.

A. Norton Taylor,	<i>President.</i>
William Shirden,	<i>Treasurer.</i>

DIRECTORS AND RESIDENCES.

A. Norton Taylor,	Newark, N. J.
Fred Jones,	Jersey City, N. J.
William Shirden,	New York, N. Y.
George E. Fleming,	New York, N. Y.
Joseph Q. Taylor,	Taunton, Mass.

CAPITAL.

Capital authorized by charter,	\$10,000 00
Capital authorized by vote of company,	10,000 00
Capital paid in, 100 shares; par value, \$100,	10,000 00

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
July 1, 1907,	Demand,	Bonds (when issued),	5	\$29,617 79
July 6, 1907,	Demand,	Bonds (when issued),	5	1,500 00
Aug. 8, 1907,	Demand,	Bonds (when issued),	5	1,600 00
Sept. 4, 1907,	Demand,	Bonds (when issued),	5	1,600 00
Oct. 5, 1907,	Demand,	Bonds (when issued),	5	5,000 00
Nov. 4, 1907,	Demand,	Bonds (when issued),	5	1,600 00
Dec. 16, 1907,	Demand,	Bonds (when issued),	5	1,500 00
Jan. 10, 1908,	Demand,	Bonds (when issued),	5	3,500 00
Feb. 8, 1908,	Demand,	Bonds (when issued),	5	1,600 00
March 4, 1908,	Demand,	Bonds (when issued),	5	1,600 00
April 4, 1908,	Demand,	Bonds (when issued),	5	1,600 00
May 7, 1908,	Demand,	Bonds (when issued),	5	1,500 00
June 1, 1908,	Demand,	Bonds (when issued),	5	1,800 00
Total amount of bonds and loans,				\$54,017 79
Capital paid in,				10,000 00
Total liability for capital and loans,				\$64,017 79

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$5,173 37
General expense,	\$3,791 86	
Operating expense,	7,477 32	
Maintenance,	1,277 96	
Construction,	2,829 30	
Total expenses,		15,376 44
Deficit for year ending June 30, 1908,		\$10,203 07

EARNINGS.

Exchange service :—

Subscribers' rentals,	\$5,173 37
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EXPENSES.

General expense:—

Taxes,	\$132 40
Operating expense,	15,244 04
Real estate expense,	24,400 00
Total of all operating expenses,	\$39,776 44

STATISTICAL INFORMATION.

Number of subscribers,	. . . . .	686
Number of instruments,	. . . . .	686
Number of operators,	. . . . .	6
Number of subscribers on party lines,	. . . . .	280
Number of subscribers on single lines,	. . . . .	406
Underground system:—		
Conduit, feet,	. . . . .	20,299
Duct, feet,	. . . . .	284,598
Cable, feet,	. . . . .	31,761
Wire, feet,	. . . . .	2,935,225
Overhead system:—		
Pole line, miles,	. . . . .	60.5
Iron wire, miles,	. . . . .	408

GENERAL REMARKS AND EXPLANATIONS.

NEW YORK, Dec. 29, 1908.

Massachusetts Highway Commission.

GENTLEMEN:—In reference to the Massachusetts Telephone and Telegraph Company, I beg leave to say that, as a result of your request to make its report more complete, men were employed to go over its books, etc., at a considerable expense to the company when it could not afford it, and, as a result, additional figures and memoranda were furnished you. The peculiar conditions of the company just at this time arise from certain irregularities in its bookkeeping, etc., which make it impossible to give you any more information than that which has already been furnished until all matters are thoroughly adjusted. What has been furnished, however, covers the company, its plant and its condition. You have all of the data upon which to base your assessment, and it has afforded the company and its officers pleasure to get at every fact possible.

An effort to make a trial balance of the data wanted by you has been made and our resources exhausted without ability to do it, on account of the condition of the books at the time. All the books and records of the company are now being brought into shape, so that I hope the next report will be to your satisfaction.

Very truly yours,

WILLIAM SHIRDEN,

Secretary and Treasurer, Massachusetts Telephone and Telegraph Company.

NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: 101 Milk Street, Boston, Mass.

Date of incorporation: Oct. 19, 1883.

State where incorporated: New York.

Date of annual meeting: first Monday in May.

Date of organization: Oct. 19, 1883.

Date when company began to give service: October, 1883.

Cities and towns in Massachusetts in which service is given by the company over its own lines:—

Acton,

Adams,

Agawam,

Alford,

Amesbury,

Amherst,

Andover,

Arlington,

Ashburnham,

Ashby,

Ashland,

Athol,

Auburn,	Florida,	Malden,
Ayer,	Foxborough,	Manchester,
Barre,	Framingham,	Marblehead,
Becket,	Franklin,	Marlborough,
Bedford,	Gardner,	Maynard,
Belchertown,	Georgetown,	Medfield,
Bellingham,	Gloucester,	Medford,
Belmont,	Goshen,	Medway,
Berlin,	Grafton,	Melrose,
Bernardston,	Granby,	Mendon,
Beverly,	Granville,	Merrimac,
Billerica,	Great Barrington,	Methuen,
Blandford,	Greenfield,	Middlefield,
Bolton,	Greenwich,	Middleton,
Boston,	Groton,	Milford,
Boxborough,	Groveland,	Millbury,
Boxford,	Hadley,	Millis,
Boylston,	Hamilton,	Milton,
Braintree,	Hampden,	Monson,
Brimfield,	Hancock,	Montague,
Brookfield,	Hardwick,	Monterey,
Brookline,	Harvard,	Montgomery,
Burlington,	Hatfield,	Nahant,
Cambridge,	Haverhill,	Natick,
Canton,	Hawley,	Needham,
Carlisle,	Hingham,	New Ashford,
Charlton,	Hinsdale,	New Braintree,
Chelmsford,	Holbrook,	New Marlborough,
Chelsea,	Holden,	Newbury.
Cheshire,	Holland,	Newburyport,
Chester,	Holliston,	Newton,
Chesterfield,	Holyoke,	Norfolk,
Chicopee,	Hopedale,	North Adams,
Clarksburg,	Hopkinton,	North Andover,
Clinton,	Hubbardston,	North Brookfield,
Cohasset,	Hudson,	North Reading,
Concord,	Hull,	Northampton,
Conway,	Huntington,	Northborough,
Cummington,	Hyde Park,	Northbridge,
Dalton,	Ipswich,	Northfield,
Dana,	Lancaster,	Norwood,
Danvers,	Lanesborough,	Orange,
Dedham,	Lawrence,	Otis,
Deerfield,	Lee,	Oxford,
Douglas,	Leicester,	Palmer,
Dover,	Lenox,	Paxton,
Dracut,	Leominster,	Peabody,
Dudley,	Lexington,	Pelham,
Dunstable,	Leyden,	Pepperell,
Easthampton,	Lincoln,	Peru,
East Longmeadow,	Littleton,	Petersham,
Egremont,	Longmeadow,	Phillipston,
Enfield,	Lowell,	Pittsfield,
Erving,	Ludlow,	Plainfield,
Essex,	Lunenburg,	Prescott,
Everett,	Lynn,	Princeton,
Fitchburg,	Lynnfield,	Quincy,

Randolph,	Stockbridge,	Wendell,
Reading,	Stoneham,	Wenham,
Revere,	Stoughton,	West Boylston,
Rockport,	Stow,	West Brookfield,
Rowe,	Sturbridge,	West Newbury,
Rowley,	Sudbury,	West Springfield,
Royalston,	Sunderland,	West Stockbridge,
Russell,	Sutton,	Westborough,
Rutland,	Swampscott,	Westfield,
Salem,	Templeton,	Westford,
Salisbury,	Tewksbury,	Westhampton,
Sandisfield,	Tolland,	Westminster,
Saugus,	Topsfield,	Weston,
Savoy,	Townsend,	Westwood,
Sharon,	Tyngsborough,	Weymouth,
Sheffield,	Tyringham,	Whately,
Shelburne,	Upton,	Wilbraham,
Sherborn,	Uxbridge,	Williamsburg,
Shirley,	Wakefield,	Williamstown,
Shrewsbury,	Wales,	Wilmington,
Somerville,	Walpole,	Winchendon,
Southampton,	Waltham,	Winchester,
South Hadley,	Ware,	Windsor,
Southborough,	Warren,	Winthrop,
Southbridge,	Warwick,	Woburn,
Southwick,	Watertown,	Worcester,
Spencer,	Wayland,	Worthington,
Springfield,	Webster,	Wrentham.
Sterling,	Wellesley,	

This company also gives service in the States of Maine, New Hampshire and Vermont.

GENERAL OFFICERS AND OFFICIAL TITLES.

Thomas Sherwin,	<i>President.</i>
Henry S. Hyde,	<i>Vice-President.</i>
Jasper N. Keller,	<i>Vice-President.</i>
Fred W. Story,	<i>Assistant to Vice-President.</i>
Francis A. Houston,	<i>General Manager.</i>
William J. Denver,	<i>Assistant General Manager.</i>
Carl T. Keller,	<i>Assistant General Manager.</i>
George H. Dresser,	<i>General Superintendent.</i>
Matt B. Jones,	<i>Counsel.</i>
William R. Driver,	<i>Treasurer.</i>
Edmund S. Willard,	<i>Assistant Treasurer.</i>
Edmund W. Longley,	<i>Secretary and Auditor.</i>
Leslie D. Knowlton,	<i>Assistant Auditor.</i>
Moses G. Parker,	<i>Agent.</i>
Frederick P. Valentine,	<i>Engineer of Traffic.</i>
George K. Manson,	<i>Assistant Chief Engineer.</i>
Nathaniel W. Lillie (to May 1st),	<i>Superintendent of Supply Department and Purchasing Agent.</i>

DIRECTORS AND RESIDENCES.

Charles F. Ayer,	Lowell, Mass.
John H. Cahill,	New York, N. Y.
Edward J. Hall,	Morristown, N. J.
Francis H. Dewey,	Worcester, Mass.
William H. Elliot,	Keene, N. H.
John F. Hill,	Augusta, Me.
Winfield S. Hutchinson,	Newton, Mass.
Henry S. Hyde,	Springfield, Mass.
Matt B. Jones,	Newton, Mass.
Moses G. Parker,	Lowell, Mass.
Thomas Sherwin,	Jamaica Plain, Mass.
Theodore N. Vail,	Lyndonville, Vt.

CAPITAL.

Capital authorized by articles of association, and increased from time to time under the general laws,	\$50,000,000 00
Capital authorized by vote of company,	35,509,500 00
Capital paid in, 355,095 shares; par value, \$100,	35,509,500 00
Whole number of stockholders,	3,700
Number of stockholders resident in Massachusetts,	3,275
Amount of stock held in Massachusetts (shares),	135,651
Amount of stock held by Parent Telephone Company (shares),	208,058

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
April 1, 1891,	April 1, 1906,	Debenture,	6	\$6,000 00
April 1, 1893,	April 1, 1908,	Debenture,	6	16,000 00
April 1, 1895,	April 1, 1915,	Debenture,	5	500,000 00
April 1, 1896,	April 1, 1916,	Debenture,	5	500,000 00
April 1, 1899,	April 1, 1919,	Debenture,	5	500,000 00
Jan. 1, 1900,	Jan. 1, 1930,	Debenture,	4	1,000,000 00
April 25, 1905, ¹	April 20, 1906,	Real estate, Worcester,	4	12,000 00
Oct. 1, 1904, ¹	Oct. 1, 1909,	Real estate, Fort Hill Square, Boston,	3½	165,000 00
March 2, 1903, ¹	March 2, 1908,	Real estate, Fort Hill Square, Boston,	3½	35,000 00
<i>Notes Payable.</i>				
March 19, 1908,	Demand,	Granville Telephone Company,	6	2,600 00
March 30, 1908,	Demand,	American Telephone and Telegraph Company.	6	500,000 00
Total amount of bonds and notes,				\$3,236,600 00
Capital paid in,				35,509,500 00
Total liability for capital and loans,				\$38,746,100 00

¹ Assumed by New England Telephone and Telegraph Company.

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation,	\$10,664,270 45	
Less rebates and discounts, ¹	210,285 50	
Revenue from operation, ²		\$10,453,984 95
General expense,	\$1,451,853 86	
Operating expense,	2,678,521 23	
Current repair,	1,441,338 52	
Reconstruction,	1,096,825 69	
Deferred maintenance,	856,256 03	
Instrument rentals,	488,812 63	
Other expenses,	52,060 93	
Total expenses,		8,065,668 89
Net revenue from operation,		\$2,388,316 06
Miscellaneous income:—		
Income from securities,	\$189,925 69	
Real estate revenue,	8,985 34	
Other miscellaneous income:—		
Interest on bank deposits,	\$9,478 00	
Profit on labor and material,	22,456 83	
	31,934 83	
Total miscellaneous income,		230,845 86
Total income above expense,		\$2,619,161 92
Fixed charges:—		
Interest on funded debt,	\$137,500 01	
Interest on floating debt,	223,807 18	
Total fixed charges,		361,307 19
Surplus of net income above fixed charges,		\$2,257,854 73
Dividends:—		
Dividends declared, 6 per cent. on \$31,697,800,		1,901,868 00
Surplus for year ending June 30, 1908,		\$355,986 73

EARNINGS (WHOLE SYSTEM).

Gross earnings from operation:—	
Exchange service:—	
Subscribers' rentals,	\$7,416,669 45
Pay station local tolls,	429,703 02
Terminal charges on long-distance business,	48,259 30
Leased line rentals,	21,730 20
Miscellaneous exchange earnings,	28,593 56
Total exchange service,	\$7,944,955 53
Amount carried forward,	\$7,944,955 53

¹ See note 2 on page 215.² Revenue from operation in Massachusetts (See note 1, on page 214):—

Gross earnings from operation,	\$8,761,112 22
Less rebates and discounts,	152,380 38
Revenue from operation,	\$8,608,731 84
Miscellaneous income,	190,393 25
	\$8,799,125 09

	Items.	Totals.
<i>Amount brought forward,</i>		\$7,944,955 53
Gross earnings from operation — <i>Con.</i>		
Toll service: —		
Toll service,	\$2,552,916 36	
Leased line rental,	25,728 59	
Miscellaneous toll earnings,	113 50	
Total toll service,		2,578,758 45
Private line: —		
Rental of instruments,	\$18,054 05	
Miscellaneous earnings,	38,449 16	
Total private line,		56,503 21
Sub-licensee: —		
Rental of instruments,	\$59,419 88	
Miscellaneous earnings,	24,633 38	
Total sub-licensee,		84,053 26
Total gross earnings from operation,		\$10,664,270 45
Less rebates and discounts,		210,285 50
Revenue from operation,		\$10,453,984 95
Miscellaneous income: —		
Real estate revenue,	\$8,985 34	
Dividends on stocks of other companies,	44,984 42	
Interest on bonds and notes of other companies and running accounts,	144,941 27	
Interest on bank deposits,	9,478 00	
Profit on labor and material,	\$26,022 99	
Less rebates,	3,566 16	
Total miscellaneous income,	22,456 83	230,845 86
Total gross earnings and income,		\$10,684,830 81

EXPENSES (WHOLE SYSTEM).

General expense: —		
Salaries of officers,	\$92,483 59	
Salaries of others,	96,218 50	
Wages of clerks,	177,963 28	
Rent, light and heat,	51,647 96	
Travelling,	12,081 33	
Postage, printing and stationery,	184,609 99	
Directory,	180,128 61	
Taxes,	479,625 62	
Legal,	71,439 99	
Damages and compensation,	29,023 63	
Insurance,	35,738 29	
Incidental,	40,893 07	
Total general expense,		\$1,451,853 86
Operating: —		
Superintendence,	\$117,247 22	
Wages of operators,	1,549,004 94	
Wages of others,	540,899 70	
Rent, light and heat,	255,484 81	
Amounts carried forward,	\$2,462,636 67	\$1,451,853 86

	Items.	Totals.
<i>Amounts brought forward,</i>	\$2,462,636 67	\$1,451,853 86
<i>Operating — Con.</i>		
Postage, printing and stationery,	27,173 18	
Advertising and canvassing,	120,464 81	
Incidental,	68,246 57	
Total operating expense,		2,678,521 23
<i>Current repairs: —</i>		
Exchange overhead lines,	\$542,623 25	
Exchange underground lines,	73,753 54	
Exchange submarine lines,	2,766 13	
Central office equipment,	303,155 04	
Subscribers' equipment,	378,234 33	
Toll overhead lines,	45,911 78	
Toll underground lines,	2,048 30	
Toll submarine lines,	108 22	
Incidental,	92,737 93	
Total maintenance expense,		1,441,338 52
<i>Instrument rentals: —</i>		
Exchange,	\$354,754 83	
Toll,	110,432 79	
Private line,	3,332 70	
Sub-licensee,	20,292 31	
Total instrument rentals,		488,812 63
Messenger expense,	\$5,358 58	
Conduit, pole and roof rent,	29,845 02	
Sub-licensee expense,	16,857 33	
		52,060 93
<i>Total expense, not including charges for reconstruction and deferred repairs,</i>		
		\$6,112,587 17
<i>Reconstruction items charged to expense:¹ —</i>		
Exchange overhead lines,	\$414,624 82	
Exchange underground lines,	81,193 78	
Exchange submarine lines,	3,359 96	
Central office equipment,	210,100 41	
Subscribers' station equipment,	323,366 47	
Toll overhead lines,	57,195 72	
Toll underground lines,	6,547 03	
Toll submarine lines,	437 50	
Total of reconstruction items charged to ex- pense,		\$1,096,825 69
Deferred maintenance items charged to expense,		856,256 03
<i>Total of all operating expenses,</i>		
		\$8,065,668 89

GENERAL BALANCE SHEET.

*Assets.**Exchange construction: —*

Right of way,	\$44,285 73
Overhead lines,	10,286,676 37
Underground lines,	6,433,363 14

Amount carried forward, \$16,764,325 24

	Items.	Totals.
<i>Amount brought forward,</i>	\$16,764,325 24	
Exchange construction — <i>Con.</i>		
Submarine lines,	19,377 52	
Central office equipment,	3,660,265 72	
Subscribers' station equipment,	2,589,605 67	
Total exchange construction and equipment,		\$23,033,574 15
Toll construction: —		
Right of way,	\$12,425 00	
Overhead lines,	4,674,905 39	
Underground lines,	632,785 59	
Submarine lines,	5,800 22	
Total toll construction,		5,325,916 20
Construction in process,		349,178 72
Other real estate required for operation,		1,524,410 30
Office furniture and fixtures,		148,445 50
Tools and teams,		182,681 67
Repair shop,		113,758 23
Total plant account,		\$30,677,964 77
Contracts and licenses,		4,268,000 00
Securities of other companies,		2,265,284 97
Current assets: —		
Cash on hand,	\$492,979 08	
Bills and accounts receivable,	4,413,797 82	
Supplies on hand,	1,754,036 95	
Unexpired insurance,	19,432 44	
Total current assets,		6,680,246 29
Total debits,		\$43,891,496 03
<i>Liabilities.</i>		
Capital stock,		\$35,509,500 00
Bonded debt,		2,522,000 00
Real estate mortgages,		212,000 00
Current liabilities: —		
Loans and notes payable,	\$502,600 00	
Audited vouchers and accounts,	304,757 84	
Salaries and wages, unpaid,	901 86	
Dividends not called for,	894 00	
Matured interest coupons, unpaid (including due July 1, 1907, \$20,000),	25,424 99	
Instalment account of stock,	800 00	
Total current liabilities,		835,378 69
Accrued liabilities: —		
Accrued for plant inventory,	\$5,000 00	
Interest accrued but not due,	24,013 97	
Taxes accrued but not due,	259,827 11	
Rentals accrued but not due,	67,659 42	
Other line service,	40,151 46	
Directory,	¹ 7,534 20	
Outstanding toll tickets,	535 22	
Commission to meet advertising in directory,	181 72	
Total accrued liabilities,		389,834 70
<i>Amount carried forward,</i>		\$39,468,713 39

¹ Debit item.

	Items.	Totals.
<i>Amount brought forward,</i>		\$39,468,713 39
Sinking and other special funds: —		
For deferred maintenance,	\$1,316,504 29	
For fire insurance,	185,554 59	
For accident insurance,	121,628 27	
For uncollectible accounts,	336,662 03	
For premium account,	235 42	
Total sinking and other special funds,		1,960,584 60
Total liabilities,		\$41,429,297 99
Profit and loss balance, surplus,		2,462,198 04
Total credits,		\$43,891,496 03

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$2,106,211 31
Gross earnings from operation,		10,664,270 45
Real estate revenue,		8,985 34
Dividends received on stock owned by company,		44,984 42
Interest received on bonds and notes,		35,353 94
Interest on running accounts,		109,585 26
Interest on bank balances,		9,478 00
Interest on instalment stock,		2 07
Profit on material and labor furnished,	\$26,022 99	
Less rebates,	3,566 16	
		22,456 83
Operating expenses, including charges on account of reconstruction and deferred repairs,	\$7,848,867 37	
Rebates and discounts,	210,285 50	
Interest on funded debt,	137,500 01	
Interest on floating debt,	223,807 18	
For depreciation material in stock at the supply department,	216,801 52	
Dividends declared on stock, 6 per cent.,	1,901,868 00	
Balance, surplus,	2,462,198 04	
	\$13,001,327 62	\$13,001,327 62

PROPERTY ACCOUNT (ADDITIONS DURING THE YEAR).

	Items.	Totals.
Exchange construction: —		
Right of way,	\$17,912 35	
Overhead lines,	521,579 53	
Underground lines,	335,606 25	
Submarine lines,	3,843 27	
Central office equipment,	371,724 73	
Subscribers' station equipment,	226,185 36	
Total exchange construction and equipment,		\$1,476,851 49
Toll construction: —		
Right of way,	\$3,149 48	
Overhead lines,	176,741 09	
Underground lines,	38,282 05	
Submarine lines,	4,916 98	
Total toll construction,		223,089 60
<i>Amount carried forward,</i>		\$1,699,941 09

	Items.	Totals.
<i>Amount brought forward,</i>		\$1,699,941 09
Sub-licensee: —		
Central office equipment,	\$351 13	
Subscribers' station equipment,	5,140 53	
Total sub-licensee,		5,491 66
Additions to other real estate required for operation,	\$30,879 55	
Additions to other permanent property: —		
Office furniture and fixtures,	6,632 95	
Tools and teams,	¹ 5,644 91	
Repair shop,	¹ 45,675 58	
		¹ 13,807 99
Construction in process, :		349,178 72
Total additions,		\$2,040,803 48

STATISTICAL INFORMATION. — EXCHANGE AND TOLL DATA.

	Boston and Suburban Division.	Massachusetts, Outside Boston and Suburban Division.	All Massachusetts.	Outside of Massachusetts.	Whole System.
Number of subscribers,	94,671	78,172	172,843	53,375	226,218
Number of stations,	97,606	80,601	178,207	55,524	233,731
Number of operators,	1,724	1,161	2,885	833	3,718
Number of pay stations,	2,935	2,429	5,364	2,149	7,513
Number of subscribers on party lines,	78,346	68,343	146,689	48,910	195,599
Number of subscribers on single lines,	16,325	9,829	26,154	4,465	30,619
Underground system: —					
Conduit, feet,	1,429,590	1,271,299	2,700,889	260,746	2,961,635
Duct, feet,	8,491,600	5,060,263	13,551,863	1,078,016	14,629,879
Cable, feet,	3,922,578	2,460,313	6,382,891	612,477	6,995,368
Wire, miles,	199,473	103,742	303,215	30,214	333,429
Submarine system: —					
Cable, feet,	25,817	7,385	33,202	77,236	110,438
Wire, miles,	650	142	792	383	1,175
Overhead system: —					
Pole line, miles,	952	6,281	7,233	8,175	15,408
Iron wire, miles,	13,657	35,316	48,973	36,566	85,539
Copper wire, miles,	48,001	59,720	107,721	48,505	156,226

GENERAL REMARKS AND EXPLANATIONS.

NOTE 1. — "The revenue within the State which is here reported is the revenue which has been collected within the State of Massachusetts. No deduction has been made for such portion of tolls as were collected within the State but trans-

¹ Credit item.

mitted partly over lines lying without the State. Neither has the separation been made of tolls originating at points outside of the territory of the New England Telephone and Telegraph Company but terminating at points within such territory.

"If such separation were made, it would probably show that a considerable sum collected within the State of Massachusetts had been earned on toll lines located outside of that State."

NOTE 2. — "Rebates and discounts include charges incident to maintaining the reserve for uncollectible accounts, the regular discount of 20 per cent. on monthly tolls in excess of \$10 from a single telephone, discounts for prompt payment of sub-licensee rentals, and actual losses from uncollectible bills."

NOTE 3. — "Separation of current repair and of reconstruction has been made as accurately as it has been found possible to make it, but no practical way has been found to properly divide such expenses on pole lines which carry both toll and exchange wires, cables that carry both toll and exchange circuits, switchboards that are used for both toll and exchange connections, wires which at varying times may be used for either toll or exchange purposes, underground conduits which carry both exchange and toll cables, or other portions of the plant that serve partly for exchange and partly for toll purposes. Consequently and unavoidably, the figures here given showing separation between current repair and reconstruction must be considered inaccurate."

PROVIDENCE TELEPHONE COMPANY OF MASSACHUSETTS.

Location of principal business office: 125 Milk Street, Boston, Mass.

Date of incorporation: Feb. 24, 1891.

State where incorporated: Massachusetts.

Date of annual meeting: first Tuesday in December.

Date of organization: Dec. 2, 1890.

Date when company began to give service: April 28, 1891.

Service is given by this company over its own lines in the towns of

Attleborough,	North Attleborough,	Rehoboth,
Bellingham,	Norton,	Seekonk.
Blackstone,	Plainville,	

GENERAL OFFICERS AND OFFICIAL TITLES.

Dexter B. Potter,	.	.	.	.	.	<i>President.</i>
Charles T. Howard,	.	.	.	.	.	<i>Treasurer.</i>
Joseph F. Beck,	.	.	.	.	.	<i>General Manager.</i>
Robert W. Devonshire,	.	.	.	.	.	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Dexter B. Potter,	.	.	.	.	.	Providence, R. I.
Charles T. Howard,	.	.	.	.	.	Coventry, R. I.
Joseph F. Beck,	.	.	.	.	.	Providence, R. I.
Robert W. Devonshire,	.	.	.	.	.	Boston, Mass.
Thomas Sherwin,	.	.	.	.	.	Boston, Mass.

CAPITAL.

Capital authorized by charter,	.	.	.	.	.	\$10,000 00
Capital authorized by vote of company,	.	.	.	.	.	80,000 00
Capital paid in, 800 shares; par value, \$100,	.	.	.	.	.	80,000 00

Whole number of stockholders,	6
Number of stockholders resident in Massachusetts,	2
Amount of stock held in Massachusetts (shares),	2
Amount of stock held by the parent telephone company (Providence Telephone Company) (shares),	795

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Revenue from operation,		\$46,425 94
General expense,	\$5,940 22	
Operating expense,	13,544 21	
Current repair,	8,389 63	
Reconstruction,	8,308 70	
Deferred maintenance,	2,200 00	
Instrument rentals,	2,042 08	
Other expenses,	636 03	
Total expenses,		41,060 87
Net revenue from operation,		\$5,365 07
Miscellaneous income,		576 92
Total income above expense,		\$5,941 99
Fixed charges:—		
Interest on floating debt,		4,507 42
Surplus for the year ending June 30, 1908,		\$1,434 57

EARNINGS.

Exchange service:—		
Subscribers' rentals,	\$40,852.90	
Pay station local tolls,	739.56	
Terminal charges on long-distance business,	1,103.21	
Miscellaneous exchange earnings,	281.18	
Total exchange service,		\$42,976 85
Toll service,		3,436 59
Private line:—		
Rental instruments,		12 50
Total gross earnings from operation,		\$46,425 94
Miscellaneous income,		576 92
Total gross earnings and income,		\$47,002 86

EXPENSES.

General expense:—	
Salaries of officers,	\$1,040 00
Salaries of others,	1,200 00
Wages of clerks,	115 33
Rent, light and heat,	358 68
Travelling,	92 59
Postage, printing and stationery,	414 89
Directory,	822 99
Taxes,	777 91
Amount carried forward,	\$4,822 39

	Items.	Totals.
<i>Amount brought forward,</i>	\$4,822 39	
General expense — <i>Con.</i>		
Legal,	166 82	
Damages and compensation,	4 35	
Insurance,	337 70	
Incidental,	608 96	
Total general expense,		\$5,940 22
Operating: —		
Superintendence,	\$273 00	
Wages of operators,	7,772 67	
Wages of others,	1,472 83	
Rent, light and heat,	2,448 77	
Postage, printing and stationery,	63 81	
Advertising and canvassing,	329 99	
Incidental,	1,183 14	
Total operating expense,		13,544 21
Maintenance expense,		8,389 63
Instrument rentals,		2,042 08
Conduit, pole and roof rent,		636 03
Total expenses, not including charges for reconstruction and deferred repairs,		\$30,552 17
Reconstruction items charged to expense: —		
Exchange overhead lines,	\$35 79	
Central office equipment,	1,592 16	
Subscribers' station equipment,	3,439 10	
Not classified,	4,241 65	
Total of reconstruction items charged to expense,		9,308 70
Deferred maintenance items charged to expense,		1,200 00
Total of all operating expenses,		\$41,060 87

GENERAL BALANCE SHEET.

Assets.

Exchange construction: —		
Overhead lines,	\$26,473 65	
Underground lines,	43,965 55	
Central office equipment,	10,744 32	
Subscribers' station equipment,	15,795 77	
Total exchange construction and equipment,		\$96,979 29
Toll construction: —		
Overhead lines,	\$4,829 17	
Underground lines,	525 64	
Total toll construction,		5,354 81
Office furniture and fixtures,		110 75
Total plant account,		\$102,444 85
Current assets: —		
Cash on hand,	\$1,984 63	
Bills and accounts receivable,	683 11	
Supplies on hand,	574 90	
Total current assets,		3,242 64
Total debits,		\$105,687 46

<i>Liabilities.</i>	<i>Items.</i>	<i>Totals.</i>
Capital stock,		\$80,000 00
Current liabilities:—		
Audited vouchers and accounts,	\$20,991 98	
Salaries and wages unpaid,	93 44	
Total current liabilities,		21,085 42
Accrued liabilities:—		
Prepay rental private line,		17 50
Sinking and other special funds:—		
Reserve for maintenance,		1,200 00
Total liabilities,		\$102,302 92
Profit and loss balance, surplus,		3,384 57
Total credits,		\$105,687 49

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,		\$1,950 00
Gross earnings from operation,		46,425 94
Miscellaneous income,		576 92
Operating expense, including charges on account of reconstruction and deferred repairs,	\$41,060 87	
Interest on floating debt,	4,507 42	
Balance, surplus,	3,384 57	
	\$48,952 86	\$48,952 86

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

	<i>Items.</i>	<i>Totals.</i>
Exchange construction:—		
Overhead lines,	\$8,788 28	
Underground lines,	5,355 11	
Central office equipment,	3,415 40	
Subscribers' station equipment,	1,707 77	
Total exchange construction and equipment,		\$19,266 56
Toll construction:—		
Overhead lines,		3 17
Furniture and fixtures,		110 75
Total additions,		\$19,380 48

STATISTICAL INFORMATION.

Number of subscribers,	1,496
Number of instruments,	1,663
Number of operators,	18
Number of pay stations,	25
Number of subscribers on party lines,	1,166
Number of subscribers on single lines,	59
Underground system:—	
Conduit, feet,	19,924.7
Duct, feet,	51,213.7
Cable, feet,	33,729.0
Wire, feet,	8,104,800

Overhead system:—

Pole line, miles,	59.27
Iron wire, miles,	808.65
Copper wire, miles,	498.28

THE SOUTHERN MASSACHUSETTS TELEPHONE COMPANY.

Location of principal business office: 101 Milk Street, Boston, Mass.

Date of incorporation: Feb. 17, 1880.

State where incorporated: Massachusetts.

Date of annual meeting: second Saturday in February.

Date of organization: Feb. 17, 1880.

Date when company began to give service: February, 1880.

Cities and towns in Massachusetts in which service is given by the company over its own lines:—

Abington,	Falmouth,	Plainville,
Acushnet,	Freetown,	Plymouth,
Avon,	Gay Head,	Plympton,
Barnstable,	Halifax,	Provincetown,
Berkley,	Hanover,	Raynham,
Bourne,	Hanson,	Rehoboth,
Brewster,	Harwich,	Rochester,
Bridgewater,	Kingston,	Rockland,
Brockton,	Lakeville,	Sandwich,
Carver,	Mansfield,	Scituate,
Chatham,	Marion,	Somerset,
Chilmark,	Marshfield,	Swansea,
Dartmouth,	Mashpee,	Taunton,
Dennis,	Mattapoisett,	Tisbury,
Dighton,	Middleborough,	Truro,
Duxbury,	Nantucket,	Wareham,
East Bridgewater,	New Bedford,	Wellfleet,
Eastham,	Norton,	West Bridgewater,
Easton,	Norwell,	West Tisbury,
Edgartown,	Oak Bluffs,	Westport,
Fairhaven,	Orleans,	Whitman,
Fall River,	Pembroke,	Yarmouth.

This company also gives service in the State of Rhode Island.

GENERAL OFFICERS AND OFFICIAL TITLES.

Thomas Sherwin,	<i>President.</i>
William R. Driver,	<i>Treasurer.</i>
Edmund W. Longley,	<i>Clerk and Auditor.</i>
Jasper N. Keller,	<i>Vice-President.</i>
Francis A. Houston,	<i>General Manager.</i>
Carl T. Keller,	<i>Assistant General Manager.</i>
William J. Denver,	<i>Assistant General Manager.</i>
Leslie D. Knowlton,	<i>Assistant Auditor.</i>
Frank L. Rawson,	<i>Assistant Auditor.</i>
Theodore E. Parker,	<i>Superintendent.</i>

DIRECTORS AND RESIDENCES.

Charles F. Ayer,	Lowell, Mass.
Charles W. Clifford,	New Bedford, Mass.
Theodore N. Vail,	Lyndonville, Vt.
Francis A. Houston,	Concord, Mass.
Jasper N. Keller,	Surry, N. H.
Moses G. Parker,	Lowell, Mass.
Thomas Sherwin,	Jamaica Plain, Mass.

CAPITAL.

Capital authorized by charter, and increased under the general laws,	\$600,000 00
Capital authorized by vote of company,	600,000 00
Capital paid in, 6,000 shares; par value, \$100,	600,000 00
Whole number of stockholders,	10
Number of stockholders resident in Massachusetts,	7
Amount of stock held in Massachusetts (shares),	60
Amount of stock held by the New England Telephone and Telegraph Company (shares),	5,920

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
June 1, 1896,	June 1, 1916,	Debenture,	5	\$200,000 00
Total amount of bonds and notes,				\$200,000 00
Capital paid in,				600,000 00
Total liability for capital and loans,				\$800,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, ¹		\$734,129 86
Less rebates and discounts,		16,952 03
Revenue from operation,		\$717,177 78
General expense,	\$72,816 36	
Operating expense,	204,136 78	
Current repair,	136,506 49	
Reconstruction,	116,195 14	
Deferred maintenance,	17,325 17	
Amounts carried forward,	\$546,979 94	\$717,177 78

¹ Gross earnings from operation in Massachusetts:—

Gross earnings,	\$726,182 10
Less rebates and discounts,	16,802 52
Revenue from operation,	\$709,379 58
Miscellaneous income,	7,368 49
Gross earnings and income,	\$716,748 07

	Items.	Totals.
<i>Amounts brought forward,</i>	\$546,979 94	\$717,177 78
Instrument rentals,	32,248 70	
Other expenses,	2,697 09	
Total expenses,	<hr/>	581,925 73
Net revenue from operation,		\$135,252 05
Miscellaneous income:—		
Real estate revenue,	\$5,656 73	
Other miscellaneous income,	1,730 45	
Total miscellaneous income,	<hr/>	7,387 18
Total income above expense,		\$142,639 23
Fixed charges:—		
Interest on funded debt,	\$10,000 00	
Interest on floating debt,	78,881 54	
Total fixed charges,	<hr/>	88,881 54
Net divisible income,		\$53,757 69
Dividends declared, 6 per cent. on \$600,000,		36,000 00
Surplus for year ending June 30, 1908,		<hr/> \$17,757 69

EARNINGS (WHOLE SYSTEM).

Exchange service:—		
Subscribers' rentals,	\$498,423 02	
Pay station local tolls,	22,316 85	
Terminal charges on long-distance business,	5,775 76	
Leased line rentals,	224 00	
Miscellaneous exchange earnings,	2,236 24	
Total exchange service,	<hr/>	\$528,975 87
Toll service,		202,195 88
Private line:—		
Rental instruments,	\$679 04	
Miscellaneous earnings,	2,279 07	
Total private line,	<hr/>	2,958 11
Total gross earnings from operation,		\$734,129 86
Less rebates and discounts,		16,952 08
Revenue from operation,		<hr/> \$717,177 78
Miscellaneous income:—		
Real estate revenue,	\$5,656 73	
Interest on bank deposits,	473 62	
Other miscellaneous income,	1,256 83	
Total miscellaneous income,	<hr/>	7,387 18
Total gross earnings and income,		<hr/> \$724,564 96

EXPENSES (WHOLE SYSTEM).

General expense:—	
Salaries of officers,	\$20,305 98
Salaries of others,	7,349 81
Wages of clerks,	5,189 43
Rent, light and heat,	1,759 99
<i>Amount carried forward,</i>	<hr/> \$34,605 21

	Items.	Totals.
<i>Amount brought forward,</i>	\$34,605 21	
General expense — <i>Con.</i>		
Travelling,	1,146 52	
Postage, printing and stationery,	9,157 02	
Directory,	8,087 92	
Taxes,	10,379 57	
Legal,	4,104 69	
Damages and compensation,	660 37	
Insurance,	3,000 00	
Incidental,	1,675 06	
Total general expense,		\$72,816 36
Operating:—		
Superintendence,	\$3,384 66	
Wages of operators,	111,885 95	
Wages of others,	48,758 85	
Rent, light and heat,	12,979 92	
Postage, printing and stationery,	6,240 21	
Advertising and canvassing,	11,921 50	
Incidental,	8,965 69	
Total operating expense,		204,136 78
Current repair: ¹ —		
Exchange overhead lines,	\$71,045 96	
Exchange underground lines,	5,724 84	
Exchange submarine lines,	137 58	
Central office equipment,	24,692 95	
Subscribers' equipment,	30,736 72	
Toll overhead lines,	3,915 20	
Toll underground lines,	216 56	
Toll submarine lines,	36 40	
Incidental,	28	
Total maintenance expense,		136,506 49
Instrument rentals:—		
Exchange,	\$23,340 16	
Toll,	8,770 33	
Private line,	138 21	
Total instrument rentals,		32,248 70
Messenger expense,		659 68
Conduit, pole and roof rent,		2,037 41
Total expense, not including charges for reconstruction and deferred repairs,		\$448,405 42
Reconstruction items charged to expense: ¹ —		
Exchange overhead lines,	\$70,112 86	
Exchange underground lines,	211 87	
Exchange submarine lines,	² 138 47	
Central office equipment,	876 84	
Subscribers' station equipment,	42,811 61	
Toll overhead lines,	2,225 05	
Toll underground lines,	31 29	
Toll submarine lines,	64 09	
Total of reconstruction items charged to expense,		116,195 14
Deferred maintenance items charged to expense,		17,325 17
Total of all operating expenses,		\$581,925 73

¹ See note on page 225.² Credit item.

GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Exchange and toll construction,	\$2,005,311 34	
Construction in process,	9,451 97	
Other real estate required for operation,	140,679 10	
Office furniture and fixtures,	4,498 29	
Tools and teams,	19,503 71	
Total plant account,		\$2,179,444 41
Current assets:—		
Cash on hand,	\$80,234 82	
Bills and accounts receivable,	134,862 35	
Supplies on hand,	54,176 63	
Total current assets,		269,273 80
Total debits,		\$2,448,718 21
<i>Liabilities.</i>		
Capital stock,		\$600,000 00
Bonded debt,		200,000 00
Current liabilities:—		
Audited vouchers and accounts,		1,390,332 65
Accrued liabilities:—		
Interest accrued but not due,	\$967 50	
Taxes accrued but not due,	5,795 70	
Rentals accrued but not due,	2,795 09	
Total accrued liabilities,		9,558 29
Sinking and other special funds:—		
Reserve for fire insurance,	\$8,198 19	
Reserve for uncollectible accounts,	32,013 59	
Reserve for deferred maintenance,	119,732 03	
Reserve for accident insurance,	1,409 48	
Reserve for directory,	750 77	
Total sinking and other special funds,		162,104 06
Total liabilities,		\$2,361,995 00
Profit and loss balance, surplus,		86,723 21
Total credits,		\$2,448,718 21

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,		\$68,965 52
Gross earnings from operation,		734,129 86
Miscellaneous income,		1,730 45
Real estate revenue,		5,656 73
Operating expenses, including charges on account		
of reconstruction and deferred repairs,	\$543,201 44	
Rebates and discounts,	16,952 08	
Interest on funded debt,	10,000 00	
Interest on floating debt,	78,881 54	
For depreciation:—		
For material in stock in the supply department,	38,724 29	
Dividends declared on stock,	36,000 00	
Balance, surplus,	86,723 21	
	\$810,482 56	\$810,482 56

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

Exchange construction:—	Items.	Totals.
Right of way,	\$4,192 37	
Overhead lines,	63,974 30	
Underground lines,	25,247 91	
Submarine lines,	91 80	
Central office equipment,	51,115 95	
Subscribers' station equipment,	17,856 90	
Total exchange construction and equipment, —————		\$162,479 23
Toll construction:—		
Right of way,	\$315 51	
Overhead lines,	14,893 77	
Submarine lines,	163 53	
Total toll construction, —————		15,372 81
Additions to other real estate required for operation,	¹ \$547 65	
Additions to other permanent property:—		
Construction in process,	9,451 97	
Office furniture and fixtures,	263 65	
Tools and teams, —————	1,925 12	
		11,093 09
Net additions to property account for the year,		\$188,945 13

STATISTICAL INFORMATION. — EXCHANGE AND TOLL DATA.

	In Massachusetts.	Outside Massachusetts.	Whole System.
Number of subscribers,	20,243	257	20,500
Number of instruments,	21,125	272	21,397
Number of operators,	277½	—	277½
Number of pay stations,	882	15	897
Number of subscribers on party lines,	18,348	254	18,602
Number of subscribers on single lines,	1,895	3	1,898
Underground system:—			
Conduit, feet,	303,297	—	303,297
Duct, feet,	1,351,703	—	1,351,703
Cable, feet,	428,439	—	428,439
Wire, miles,	19,180	—	19,180
Submarine system:—			
Cable, feet,	28,361	1,413	29,774
Wire, miles,	111	1	112
Overhead system:—			
Pole line, miles,	1,644	57	1,701
Iron wire, miles,	13,005	272	13,277
Copper wire, miles,	13,942	50	13,992

¹ Credit item.

NOTE. — "Separation of current repair and of reconstruction has been made as accurately as it has been found possible to make it, but no practical way has been found to properly divide such expenses on pole lines which carry both toll and exchange wires, cables that carry both toll and exchange circuits, switchboards that are used for both toll and exchange connections, wires which at varying times may be used for either toll or exchange purposes, underground conduits which carry both exchange and toll cables, or other portions of the plant that serve partly for exchange and partly for toll purposes. Consequently and unavoidably the figures here given showing separation between current repair and reconstruction must be considered inaccurate."

NONOPERATING AND SMALL TELEPHONE COMPANIES.

BEECHMONT INDEPENDENT TELEPHONE COMPANY.

Location of principal business office: East Windsor, Mass.

Date when company began to give service: February, 1906.

Service is given by this company over its own lines in the towns of Cummington, Peru and Windsor.

GENERAL OFFICER.

William R. Pierce, *Manager.*

CAPITAL.

Capital paid in, \$500 00

Number of stockholders, 6

Number of stockholders resident in Massachusetts, 6

EARNINGS AND EXPENSES.

Gross earnings: —

Exchange service, \$96 00

Expenses, 23 00

Surplus for the year, \$73 00

GENERAL BALANCE SHEET.

Assets.

Property accounts, \$500 00

Bills and accounts receivable, 96 00

Supplies on hand, 25 00

Total debits, \$621 00

Liabilities.

Capital stock, \$500 00

Surplus, 121 00

Total credits, \$621 00

STATISTICAL INFORMATION.

Number of subscribers, 12

Number of instruments, 12

Overhead system: —

Pole line, miles, 6

Iron wire, miles, 6

Liabilities.

Capital stock,	\$1,500 00
Bills and accounts payable,	465 66
Accrued liabilities (interest),	6 47
Surplus,	394 32
<hr/>	
Total credits,	\$2,366 45

STATISTICAL INFORMATION.

Number of subscribers,	49
Number of instruments,	52
Number of operators,	1
Number of pay stations,	1
Number of subscribers on party lines,	49
Overhead system: —	
Pole line, miles,	20.5
Iron wire, miles,	49

CHELMSFORD TELEPHONE COMPANY.

Location of office: Chelmsford, Mass.

Date of organization: Jan. 4, 1904.

Date when company began to give service: Jan. 4, 1904.

Service is given by this company over its own lines in the town of Chelmsford.

GENERAL OFFICERS AND OFFICIAL TITLES.

Joseph E. Warren,	<i>President.</i>
Eben T. Adams,	<i>Secretary and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Edwin C. Perham,	Chelmsford, Mass.
Ervin W. Sweetser,	Chelmsford, Mass.
Herbert C. Sweetser,	Chelmsford, Mass.
Fred A. Hazen,	Chelmsford, Mass.
Eben T. Adams,	Chelmsford, Mass.
Joseph E. Warren,	Chelmsford, Mass.

CAPITAL.

Capital paid in,	\$500 00
Number of owners,	32
Number of owners in Massachusetts,	32

EARNINGS AND EXPENSES.

Gross earnings,	\$147 64
Expenses,	147 64

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$500 00
Supplies on hand,	10 00
Cash on hand,	35 23
<hr/>	
Total debits,	\$545 23

<i>Liabilities.</i>	
Capital stock,	\$500 00
Surplus,	45 23
Total credits,	<hr/> \$545 23

STATISTICAL INFORMATION.

Number of subscribers,	32
Number of instruments,	38
Number of operators,	1
Number of subscribers on party lines,	32
Overhead system: —	
Pole line, miles,	8
Iron wire, miles,	16

NOTE. — "The Chelmsford Telephone Company, which has 32 subscribers, is not an incorporated body, but is organized as a co-operative association with no capital stock. Each subscriber is an owner and director; it has a president, clerk and treasurer. It maintains a switchboard and pays the operator \$75 per year for day service and 5 cents a call for night service.

"When any money is needed the directors or the subscribers are notified by the president and clerk of the meeting and its object, and an assessment is levied on each member to meet the expenses. We charge all new members \$10 to join. We have no regular meetings."

CITIZENS' INDEPENDENT TELEPHONE COMPANY OF WILLIAMSBURG.

Location of principal business office: Haydenville, Mass.

Date of incorporation: May 14, 1905.

State where incorporated: Massachusetts.

Date of annual meeting: April 28.

Date of organization: Sept. 5, 1904.

Date when company began to give service: Feb. 1, 1905.

Service is given by this company over its own lines in the town of Williamsburg.

GENERAL OFFICERS AND OFFICIAL TITLES.

Edward T. Barrus,	<i>President and General Manager.</i>
Elbridge W. Goodhue,	<i>Vice-President.</i>
Stephen Jorgensen,	<i>Secretary.</i>
Byron Loomis,	<i>Treasurer.</i>
Richard F. Burk,	<i>Construction Manager.</i>

DIRECTORS AND RESIDENCES.

Edward T. Barrus,	Williamsburg, Mass.
Elbridge W. Goodhue,	Haydenville, Mass.
Stephen Jorgensen,	Haydenville, Mass.
Byron Loomis,	Haydenville, Mass.
Richard F. Burk,	Haydenville, Mass.
James R. Mansfield,	Haydenville, Mass.
Herbert A. Smith,	Haydenville, Mass.

CAPITAL.

Capital paid in,	\$5,700 00
Number of stockholders,	13
Number of stockholders resident in Massachusetts,	11
Amount of stock held in Massachusetts (shares), par value, \$25,	202
Amount of notes outstanding,	\$900 00

EARNINGS AND EXPENSES.

Gross earnings,	\$300 00
Expenses,	207 07
Net earnings,	\$92 93
Interest payments,	45 00
Net profit,	\$47 93
Surplus balance from last year,	200 00
	\$247 93
Miscellaneous charges to surplus,	75 00
Surplus, June 30, 1908,	\$172 93

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$6,600 00
Bills and accounts receivable,	93 15
Supplies on hand,	52 17
Cash on hand,	32 18
Total debits,	\$6,777 50

Liabilities.

Capital stock,	\$5,700 00
Bills and accounts payable,	4 57
Notes payable,	900 00
Surplus,	172 93
Total credits,	\$6,777 50

STATISTICAL INFORMATION.

Number of subscribers,	33
Number of instruments,	35
Number of operators,	1
Number of subscribers on party lines,	33
Overhead system:—	
Pole line, miles,	20
Iron wire, miles,	10

NOTE. — “Only three miles of pole line have wires.”

CRESCENT TELEPHONE COMPANY.

Location of principal business office: New Salem, Mass.

Date when company began to give service: October, 1902.

Service is given by this company over its own lines in the towns of New Salem and Orange.

GENERAL OFFICER.

Levi W. Flagg, *Owner.*

CAPITAL.

Capital paid in, \$1,200 00

EARNINGS AND EXPENSES.

Gross earnings:—

Exchange service, \$164 00

Miscellaneous earnings, 1 15

Total gross earnings, \$165 15

Expenses, 8 00

Net profit, \$153 15

GENERAL BALANCE SHEET.

Assets.

Property accounts, \$1,200 00

Liabilities.

Capital stock, \$1,200 00

STATISTICAL INFORMATION.

Number of subscribers, 34

Number of instruments, 37

Number of pay stations, 1

Number of subscribers on party lines, 34

Overhead system:—

Pole line, miles, 13

Iron wire, miles, 26

THE FARMERS MUTUAL TELEPHONE COMPANY OF BRISTOL COUNTY.

Location of principal business office: Norton, Mass.

Date of incorporation: Sept. 2, 1902.

State where incorporated: Massachusetts.

Date of annual meeting: second Tuesday in May.

Date of organization: Sept. 5, 1902.

Date when company began to give service: before Jan. 1, 1903.

Service is given by this company over its own lines in the town of Norton, Mass.

GENERAL OFFICERS AND OFFICIAL TITLES.

Arthur M. Round, *President.*

Charles B. Caswell, *Clerk and Treasurer.*

Frank A. Clapp, *Superintendent.*

DIRECTORS AND RESIDENCES.

Arthur M. Round,	.	.	.	.	.	.	Norton, Mass.
Samuel V. Cole,	.	.	.	.	.	.	Norton, Mass.
Frank A. Clapp,	.	.	.	.	.	.	Norton, Mass.
Charles G. Clapp,	.	.	.	.	.	.	Norton, Mass.
Homer L. Lane,	.	.	.	.	.	.	Norton, Mass.

CAPITAL.

Capital paid in,	.	.	.	.	.	.	.	.	\$1,350 00
Number of stockholders,	.	.	.	.	.	.	.	.	16
Number of stockholders resident in Massachusetts,	16

DEBTS.

Amount of notes outstanding,	\$125 00
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EARNINGS AND EXPENSES.

Gross earnings,	\$120 00
Expenses,	64 25
Net earnings,	\$55 75

GENERAL BALANCE SHEET.

Assets.

Property accounts,	.	.	.	.	.	.	.	.	\$1,574 00
Cash on hand,	.	.	.	.	.	.	.	.	2 02
Total debits,	.	.	.	.	.	.	.	.	\$1,576 02

Liabilities.

Capital stock,	.	.	.	.	.	.	.	.	\$1,350 00
Bills and accounts payable,	.	.	.	.	.	.	.	.	125 00
Accrued liabilities,	.	.	.	.	.	.	.	.	61 65
Surplus,	.	.	.	.	.	.	.	.	39 37
Total credits,	.	.	.	.	.	.	.	.	\$1,576 02

STATISTICAL INFORMATION.

Number of subscribers,	.	.	.	.	.	.	.	.	16
Number of instruments,	.	.	.	.	.	.	.	.	23
Number of subscribers on party lines,	.	.	.	.	.	.	.	.	13
Number of subscribers on single lines,	.	.	.	.	.	.	.	.	3
Overhead system:—									
Pole line, miles,	.	.	.	.	.	.	.	.	6
Iron wire, miles,	.	.	.	.	.	.	.	.	6

NOTE. — "This company is not doing business for profit. There are no stockholders except owners and users of telephones. The annual dues of \$6 per year for each subscriber has paid the running expenses. There is but a small debt of \$125 remaining, caused by expense of special construction."

GRANBY TELEPHONE AND TELEGRAPH COMPANY.

Location of principal business office: Granby, Mass.

Date of incorporation: February, 1903.

State where incorporated: Massachusetts.

Date of annual meeting: third Monday of January.

Date of organization: February, 1903.

Date when company began to give service: May, 1903.

Service is given by this company over its own lines in the towns of Granby and Ludlow.

GENERAL OFFICERS AND OFFICIAL TITLES.

George F. Eastman,	<i>President and Manager.</i>
Willard A. Taylor,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

George F. Eastman,	Granby, Mass.
George F. Bell,	Granby, Mass.
George R. Smith,	Granby, Mass.
Henry H. Moody,	Granby, Mass.
Horace S. Taylor,	Granby, Mass.
Arthur T. Warner,	Granby, Mass.

CAPITAL.

Capital paid in,	\$1,200 00
Number of stockholders,	34
Number of stockholders resident in Massachusetts,	33
Amount of stock held in Massachusetts,	\$1,100 00

EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service,	\$595 75
Miscellaneous earnings,	45 00
Total gross earnings,	\$640 75
Expenses,	591 04
Net earnings,	\$49 71

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,200 00
Bills and accounts receivable,	74 55
Cash on hand,	78 44
Deficit,	62 55
Total debits,	\$1,415 54

Liabilities.

Capital stock,	\$1,200 00
Bills and accounts payable,	15 54
Other liabilities (note),	200 00
Total credits,	\$1,415 54

STATISTICAL INFORMATION.

Number of subscribers,	47
Number of instruments,	48
Number of operators,	1
Number of pay stations,	1
Number of subscribers on party lines,	47
Overhead system: —	
Pole line, miles,	14
Iron wire, miles,	28

NOTE. — The balance sheet is of Jan. 1, 1908.

HAMPDEN AUTOMATIC TELEPHONE COMPANY.

Location of principal business office: 307 Main Street, Springfield, Mass.

Date of incorporation: Feb. 8, 1900.

State where incorporated: Massachusetts.

Date of annual meeting: first Tuesday in April.

Date of organization: Feb. 3, 1900.

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles H. Churchill,	<i>President.</i>
William E. Wright,	<i>Vice-President.</i>
Samuel D. Sherwood,	<i>Treasurer.</i>
Fred A. Delabarre,	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Charles H. Churchill,	Springfield, Mass.
William E. Wright,	Springfield, Mass.
Samuel D. Sherwood,	Springfield, Mass.
Fred A. Delabarre,	Conway, Mass.
William G. McKechnie,	Springfield, Mass.
Daniel E. Leary,	Springfield, Mass.
Joseph T. Herrick,	Springfield, Mass.
Orlando M. Baker,	Springfield, Mass.

CAPITAL.

Capital paid in,	\$7,480 00
Number of stockholders,	11
Number of stockholders resident in Massachusetts,	11

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$7,173 33
Cash on hand,	306 67
Total debits,	\$7,480 00

Liabilities.

Capital stock,	\$7,480 00
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NOTE. — This company is not operating, as it has not yet installed its plant.

HEATH LOCAL TELEPHONE ASSOCIATION.

Location of principal business office: North Heath, Mass.

Date of organization: November, 1906.

Date when company began to give service: Nov. 1, 1906.

Service is given by this company over its own lines in the town of Heath.

GENERAL OFFICERS AND OFFICIAL TITLES.

Isaac W. Stetson, *President and General
Manager.*

Clifford J. Hager, *Clerk and Treasurer.*

DIRECTORS AND RESIDENCES.

Isaac W. Stetson, North Heath, Mass.

Clifford J. Hager, Dell, Mass.

Levi Lively, Dell, Mass.

Fred Stone, Cyrus, Mass.

CAPITAL.

Capital paid in,	\$780 00
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Number of stockholders,	9
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Number of stockholders resident in Massachusetts,	9
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EARNINGS AND EXPENSES.

Gross earnings:—

Exchange service,	\$538 68
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[illegible]

Total gross earnings,	\$560 28
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Expenses,	551 35
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Net earnings,	\$8 93
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Dividends, 46 80

Deficit for the year,	\$37 87
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GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,000 00
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Bills and accounts receivable,	35 00
--	-------

Supplies on hand,	50 00
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[illegible][illegible]

Liabilities.

[illegible]

Surplus,	325	32
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Total credits,	\$1,105 32
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STATISTICAL INFORMATION.

Number of subscribers,	67
Number of instruments,	68
Number of operators,	2
Number of pay stations,	4
Number of subscribers on party lines,	67
Overhead system: —	
Pole line, miles,	20
Iron wire, miles,	50

LITTLETON TELEPHONE ASSOCIATION.

Location of principal business office: Littleton, Mass.

Date of annual meeting: first Monday in April.

Date of organization: April 18, 1904.

Date when company began to give service: about Oct. 1, 1904.

Service is given by this company over its own lines in the towns of Harvard, Littleton and Westford.

GENERAL OFFICERS AND OFFICIAL TITLES.

F. B. Priest,	<i>President.</i>
J. Melvin Hartwell,	<i>Treasurer.</i>

CAPITAL.

Capital paid in,	\$1,250 00
Number of stockholders,	50
Number of stockholders resident in Massachusetts,	50

EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$498 50
Miscellaneous earnings,	225 ⁰⁰ 00
Total gross earnings,	\$723 50
Expenses,	427 35
Net earnings,	\$296 15

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,250 00
Bills and accounts receivable,	158 72
Supplies on hand,	33 00
Cash on hand,	25 00
Deficit,	49 35
Total debits,	\$1,516 07

Liabilities.

Capital stock,	\$1,250 00
Bills and accounts payable,	266 07
Total credits,	\$1,516 07

STATISTICAL INFORMATION.

Number of subscribers,	54
Number of subscribers on party lines,	54
Overhead system: —	
Pole line, miles,	20
Iron wire, miles,	40

METROPOLITAN HOME TELEPHONE COMPANY.

Location of principal business office: 853 Albany Street, Boston, Mass.

Date of incorporation: May 21, 1906.

State where incorporated: Massachusetts.

Date of annual meeting: second Monday of June.

Date of organization: May 21, 1906.

GENERAL OFFICERS AND OFFICIAL TITLES.

A. G. Bean,	<i>President.</i>
Bernard M. Wolf,	<i>Vice-President.</i>
James G. Ferguson,	<i>Treasurer.</i>

DIRECTORS AND RESIDENCES.

A. G. Bean,	Elyria, O.
Bernard M. Wolf,	Boston, Mass.
James G. Ferguson,	Boston, Mass.
Alfred S. Hayes,	Boston, Mass.
J. Hunter Byrd,	St. Louis, Mo.
W. W. Dean,	Elyria, O.
E. F. Allen,	Elyria, O.

CAPITAL.

Capital paid in,	\$5,000 00
Number of stockholders,	8
Number of stockholders resident in Massachusetts,	3
Amount of stock held in Massachusetts (shares),	3

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$3,303 92
Cash on hand,	1,696 08
Total debits,	\$5,000 00

Liabilities.

Capital stock,	\$5,000 00
Total credits,	\$5,000 00

NOTE. — This company has as yet done no construction.

NANTUCKET TELEPHONE COMPANY.

Location of principal business office: Northeast corner Pine and Farmer streets,
Nantucket, Mass.

Date of incorporation: May 28, 1896.

State where incorporated: Massachusetts.

Date of annual meeting: first Monday in April.

Date of organization: May 28, 1896.

Date when company began to give service: June 4, 1896.

GENERAL OFFICER.

William T. Devlan, *President and Treasurer.*

DIRECTORS AND RESIDENCES.

William T. Devlan,	Nantucket, Mass.
Charles H. Robinson,	Nantucket, Mass.
John S. Grouard,	Nantucket, Mass.
Isaac Hills,	Siasconset, Mass.
Robert K. Appleton,	Nantucket, Mass.

CAPITAL.

Capital paid in, \$2,500 00

Number of stockholders, 44

Number of stockholders resident in Massachusetts, 44

DEBTS.

The company has no bonds or notes outstanding.

NOTE. — This company has not operated for several years and owns nothing but a franchise.

THE NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 119 Milk Street, Boston, Mass.

Date of incorporation: May 17, 1888.

State where incorporated: Massachusetts.

Date of annual meeting: first Wednesday in April.

Date of organization: May 17, 1888.

GENERAL OFFICERS AND OFFICIAL TITLES.

Jasper N. Keller,	<i>President.</i>
Francis A. Houston,	<i>General Manager.</i>
Edmund S. Willard,	<i>Treasurer.</i>
Edward A. Wilkie,	<i>Clerk.</i>
William J. Denver,	<i>Assistant General Manager.</i>
Carl T. Keller,	<i>Assistant General Manager.</i>
Edmund W. Longley,	<i>Auditor.</i>

EXPENSES.

GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Exchange and toll construction,	\$33,000 00	
Investment real estate not required for operation,	492,402 40	
Total plant account,	<hr/>	\$525,402 40
Current assets:—		
Cash on hand,	\$107 11	
Bills and accounts receivable,	10 00	
Total current assets,	<hr/>	117 11
Total debits,		<hr/> \$525,519 51
<i>Liabilities.</i>		
Capital stock,		\$25,000 00
Real estate mortgages,		10,000 00
Current liabilities:—		
Loans and notes payable,		452,244 30
Accrued liabilities:—		
Interest accrued but not due,		46 65
Total liabilities,		<hr/> \$487,290 95
Profit and loss balance, surplus,		38,228 56
Total credits,		<hr/> \$525,519 51

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,		\$35,138 81
Real estate revenue,		30,345 35
Operating expenses,	\$2,000 04	
Interest on floating debt,	25,255 56	
Balance, surplus,	38,228 56	
	<hr/> \$65,484 16	<hr/> \$65,484 16

PROPERTY ACCOUNTS (ADDITIONS AND DEDUCTIONS DURING THE YEAR).

Additions.

Real estate not required for operation,	\$7,519 08
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Deductions.

No deductions during the year.

Net additions to property account for the year,	<hr/> \$7,519 08
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NOTE. — This is not an operating company.

NORTHFIELD FARMS TELEPHONE COMPANY.

Location of principal business office: Northfield Farms, Mass.

Date when company began to give service: 1902.

Service is given by this company over its own lines in the town of Northfield.

GENERAL OFFICER.

Osgood L. Leach, *Owner.*

CAPITAL.

Capital paid in, \$300 00

EARNINGS AND EXPENSES.

Gross earnings, \$278 95

Expenses, 191 59

Net earnings, \$87 36

GENERAL BALANCE SHEET.

Assets.

Property accounts, \$300 00

Liabilities.

Capital stock, \$300 00

STATISTICAL INFORMATION.

Number of subscribers, 18

Number of instruments, 21

Number of pay stations, 1

Number of subscribers on party lines, 18

Overhead system: —

Pole line, miles, 7

Iron wire, miles, 7

NORTH ORANGE TELEPHONE COMPANY.

Location of principal business office: North Orange, Mass.

Date of organization: April 29, 1902.

Date when company began to give service: About June 1, 1902.

Service is given by this company over its own lines in the town of Orange.

GENERAL OFFICER.

H. W. Gilmore, *Manager.*

EARNINGS AND EXPENSES.

Gross earnings, \$31 00

Expenses, 22 00

Net earnings, \$9 00

GENERAL BALANCE SHEET.

Assets.

Property accounts, \$500 00

Liabilities.

Capital stock, \$500 00

STATISTICAL INFORMATION.

Number of subscribers,	47
Number of instruments,	47
Number of operators,	1
Number of subscribers on party lines,	47
Overhead system: —	
Pole line, miles,	10
Iron wire, miles,	10

NOTE. — "This report is approximately correct. There is no exact record kept; therefore it is impossible to give a correct report."

OAKHAM AND COLDBROOK SPRINGS TELEPHONE COMPANY.

Location of principal business office: Oakham, Mass.

Date of organization: June 1, 1893.

Date when company began to give service: July 16, 1903.

Service is given by this company over its own lines in the towns of Oakham and Barre.

GENERAL OFFICERS.

Frank S. Conant and Harry B. Parker, Owners.

DEBTS.

Amount of notes outstanding,	\$601 36
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EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$738 03
Toll service,	358 57
Miscellaneous earnings,	13 07
Total gross earnings,	\$1,109 67
Expenses,	720 03
Net earnings,	\$389 64
Interest payments,	14 36
Surplus for the year,	\$375 28
Depreciation,	413 53
Deficit, June 30, 1908,	\$38 25

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$2,036 59
Bills and accounts receivable,	41 77
Supplies on hand,	50 00
Cash on hand,	23 20
Other assets,	42 00
Total debits,	\$2,193 56

Liabilities.

Capital stock,	\$1,570 57
Bills and accounts payable,	622 99
Total credits,	<u>\$2,193 56</u>

STATISTICAL INFORMATION.

Number of subscribers,	54
Number of instruments,	60
Number of operators,	3
Number of pay stations,	7
Number of subscribers on party lines,	50
Number of subscribers on single lines,	4
Overhead system: —	
Pole line, miles,	23
Iron wire, miles,	50
Copper wire, miles,	1

ORLEANS TELEPHONE COMPANY.

Location of principal business office: Orleans, Mass.

Date when company began to give service: April, 1901.

Service is given by this company over its own lines in the town of Orleans.

GENERAL OFFICER.

Henry K. Cummings, *Owner.*

CAPITAL.

Capital paid in,	\$583 00
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EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$198 65
Toll service,	2 50
Miscellaneous earnings,	6 00
Total gross earnings,	<u>\$207 15</u>
Expenses,	<u>5 50</u>
Net earnings,	\$201 65

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$413 00
Bills and accounts receivable,	2 50
Supplies on hand,	6 50
Cash on hand,	10 00
Deficit,	<u>151 00</u>
Total debits,	\$583 00

Liabilities.

Capital stock,	\$583 00
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STATISTICAL INFORMATION.

Number of subscribers,	20
Number of instruments,	22
Number of pay stations,	2
Number of subscribers on party lines,	20
Overhead system: —	
Pole line, miles,	6.5
Iron wire, miles,	6.5

E. M. PARTRIDGE.

Location of office: Miller's Falls, Mass.

Date when service first given: June 1, 1899.

Service is given by this concern over its own lines in the towns of Erving and Montague.

GENERAL OFFICER.

E. M. Partridge, *Owner.*

EARNINGS AND EXPENSES.

Gross earnings: —	
Exchange service,	\$790 17
Miscellaneous earnings,	142 84
Total gross earnings,	\$933 01
Expenses,	648 33
Net earnings,	\$284 68

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$874 28
Bills and accounts receivable,	315 35
Supplies on hand,	35 00
Cash on hand,	106 25
Total debits,	\$1,330 88

Liabilities.

Capital stock,	\$1,268 06
Bills and accounts payable,	62 82
Total credits,	\$1,330 88

STATISTICAL INFORMATION.

Number of subscribers,	65
Number of instruments,	69
Number of pay stations,	2
Number of subscribers on party lines,	61
Number of subscribers on single lines,	4
Overhead system: —	
Pole line, miles,	$\frac{1}{2}$
Iron wire, miles,	15

NOTE. — Wires are strung on New England Telephone and Telegraph Company's poles.

RICHMOND TELEPHONE COMPANY.

Location of principal business office: Richmond, Mass.

Date of incorporation: Sept. 29, 1903.

State where incorporated: Massachusetts.

Date of annual meeting: first Friday after July 1.

Date of organization: Sept. 29, 1903.

Date when company began to give service: September, 1903.

Service is given by this company over its own lines in the town of Richmond.

GENERAL OFFICERS AND OFFICIAL TITLES.

Frederic A. Clement,	<i>President and General Manager.</i>
Sydney M. Loveland,	<i>Vice-President.</i>
John R. Ayer,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Frederic A. Clement,	Richmond, Mass.
Sydney M. Loveland,	Richmond, Mass.
Amos G. Kiltz,	Richmond, Mass.
Charles H. Nichols,	Richmond, Mass.
James H. Barnes,	Richmond, Mass.

CAPITAL.

Capital paid in,	\$1,610 00
Number of stockholders,	19
Number of stockholders resident in Massachusetts,	16
Amount of stock held in Massachusetts (shares),	19
Amount of notes outstanding,	\$500 00

EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service,	\$666 50
Toll service,	285 67
Total gross earnings,	\$952 17
Expenses,	747 24
Net earnings,	\$204 93
Interest payments,	30 00
Net profit,	\$174 93
Dividends,	96 60
Surplus for the year,	\$78 33

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$3,010 00
Bills and accounts receivable,	137 75
Supplies on hand,	20 00
Cash on hand,	41 11
Total debits,	\$3,208 86

Liabilities.

Capital stock,	\$1,610 00
Bills and accounts payable,	500 00
Surplus,	1,098 86
<hr/>	
Total credits,	\$3,208 86

STATISTICAL INFORMATION.

Number of subscribers,	44
Number of instruments,	49
Number of operators,	2
Number of pay stations,	2
Number of subscribers on party lines,	43
Number of subscribers on single lines,	1
Overhead system:—	
Pole line, miles,	17
Iron wire, miles,	52
Copper wire, miles,	2½

ROWLEY TELEPHONE COMPANY.

Location of principal business office: Rowley, Mass.

Service is given by this company over its own lines in the towns of Ipswich and Rowley.

GENERAL OFFICERS.

Almon E. Carpenter and Albert E. Bailey, *Owners.*

DEBTS.

Amount of notes outstanding,	\$1,600 00
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EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service,	\$630 22
Toll service,	52 85
<hr/>	
Total gross earnings,	\$683 07
Expenses,	330 99
<hr/>	
Net earnings,	\$352 08
Interest payments,	96 00
<hr/>	
Net profit,	\$256 08

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$2,350 00
Bills and accounts receivable,	508 59
Supplies on hand,	99 25
Cash on hand,	187 83
<hr/>	
Total debits,	\$3,145 67

Liabilities.

Capital stock,	\$1,545 67
Bills and accounts payable,	1,600 00
<hr/>	
Total credits,	\$3,145 67

STATISTICAL INFORMATION.

Number of subscribers,	44
Number of instruments,	42
Number of operators,	1
Number of subscribers on party lines,	42
Overhead system: —	
Pole line, miles,	10
Iron wire, miles,	26

STATE LINE CO-OPERATIVE TELEPHONE COMPANY NO. 7.

Location of principal business office: State Line, Mass.

Date of organization: Jan. 1, 1902.

Date when company began to give service: Jan. 1, 1902.

Service is given by this company over its own lines in the town of West Stockbridge, Mass., and also in the State of New York.

GENERAL OFFICERS AND OFFICIAL TITLES.

John Howes,	<i>President.</i>
John P. Smith,	<i>Treasurer.</i>
Charles H. Baldwin,	<i>Secretary.</i>

CAPITAL.

Capital paid in,	\$525 00
Number of stockholders,	15
Number of stockholders resident in Massachusetts,	6
Amount of stock held in Massachusetts,	\$210 00

EARNINGS AND EXPENSES.

Gross earnings,	\$59 05
Expenses,	72 25
Deficit, June 30, 1908,	\$13 20

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$525 00
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Liabilities.

Capital stock,	\$525 00
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STATISTICAL INFORMATION.

Number of subscribers,	15
Number of instruments,	15
Number of operators,	2
Number of pay stations,	2
Number of subscribers on party lines,	15
Overhead system: —	
Pole line, miles,	5
Iron wire, miles,	10

STATE LINE CO-OPERATIVE TELEPHONE COMPANY NO. 12.

Location of principal business office: West Stockbridge Centre, Mass.

Date of organization: Dec. 6, 1902.

Date when company began to give service: March 1, 1903.

Service is given by this company over its own lines in the towns of Great Barrington and West Stockbridge.

GENERAL OFFICERS AND OFFICIAL TITLES.

Henry C. Kinne,	. . . . .	<i>President.</i>
Charles W. Roberts,	. . . . .	<i>Secretary.</i>
John M. Vaber,	. . . . .	<i>Treasurer.</i>

CAPITAL.

Capital paid in,	. . . . .	\$875 00
Number of stockholders,	. . . . .	18
Number of stockholders resident in Massachusetts,	. . . . .	18

EARNINGS AND EXPENSES.

Gross earnings:—

Exchange service,	. . . . .	\$136 50
Toll service,	. . . . .	1 90
Total gross earnings,	. . . . .	\$138 40
Expenses,	. . . . .	45 90
Surplus, June 30, 1908,	. . . . .	\$92 50

GENERAL BALANCE SHEET.

Assets.

Property accounts,	. . . . .	\$1,020 42
Supplies on hand,	. . . . .	6 00
Cash on hand,	. . . . .	6 68
Total debits,	. . . . .	\$1,033 10

Liabilities.

Capital stock,	. . . . .	\$875 00
Bills and accounts payable,	. . . . .	65 60
Surplus,	. . . . .	92 50
Total credits,	. . . . .	\$1,033 10

STATISTICAL INFORMATION.

Number of subscribers,	. . . . .	22
Number of instruments,	. . . . .	22
Number of operators,	. . . . .	1
Number of subscribers on party lines,	. . . . .	22
Overhead system:—		
Pole line, miles,	. . . . .	13½
Iron wire, miles,	. . . . .	27

THE STATE LINE TELEPHONE COMPANY.

Location of principal business office: West Stockbridge, Mass.

Date when company began to give service: April, 1902.

Service is given by this company over its own lines in the town of West Stockbridge.

GENERAL OFFICER.

William H. Losty, Owner.

CAPITAL.

Capital paid in, \$1,410 00

DEBTS.

No bonds or notes have been issued by the company.

EARNINGS AND EXPENSES.

Gross earnings: —

Exchange service,	\$108 85
Toll service,	24 30
Miscellaneous earnings,	216 00

Total gross earnings,	\$349 15
Expenses,	227 65

Surplus, June 30, 1908,	\$121 50
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GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$1,410 00
Cash on hand,	121 50
Total debits,	\$1,531 50

Liabilities.

Capital stock,	\$1,410 00
Surplus,	121 50
Total credits,	\$1,531 50

STATISTICAL INFORMATION.

Number of subscribers,	16
Number of instruments,	16
Number of pay stations,	2
Number of subscribers on party lines,	16
Overhead system: —	
Pole lines, miles,	9
Iron wire, miles,	9

NOTE. — "The so-called State Line Telephone Company is not an incorporated body, but is the name given by the New England Telephone Company in their directory to the exchange at West Stockbridge and State Line owned by William H. Losty."

WEST STOCKBRIDGE MUTUAL TELEPHONE COMPANY.

Location of principal business office: West Stockbridge, Mass.

Date of incorporation: March 7, 1904.

State where incorporated: Massachusetts.

Date of annual meeting: second Monday in May.

Date of organization: Feb. 20, 1904.

Date when company began to give service: May 1, 1904.

Service is given by this company over its own lines in the town of West Stockbridge.

GENERAL OFFICERS AND OFFICIAL TITLES.

Cyrus W. Sprague,	<i>President.</i>
William W. Bartlett,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Vallas R. Truesdell,	West Stockbridge, Mass.
Cyrus W. Sprague,	West Stockbridge, Mass.
Charles R. Van Buskirk,	West Stockbridge, Mass.
Charles H. Fuarey,	West Stockbridge, Mass.
Walter W. Curtis,	West Stockbridge, Mass.

CAPITAL.

Capital paid in,	\$1,000 00
Number of stockholders,	12
Number of stockholders resident in Massachusetts,	12

EARNINGS AND EXPENSES.

Gross earnings:—	
Exchange service,	\$342 85
Toll service,	7 20
Miscellaneous earnings,	6 98
Total gross earnings,	\$357 03
Expenses,	199 20
Net earnings,	\$157 83
Dividends on 36 shares,	36 00
Surplus for the year,	\$121 83

GENERAL BALANCE SHEET.

Assets.

Property accounts,	\$811 00
Bills and accounts receivable,	5 00
Supplies on hand,	10 00
Cash on hand,	71 83
Treasury stock,	150 00
Deficit,	29 72
Total debits,	\$1,077 55

Liabilities.

Capital stock,	\$1,000 00
Bills and accounts payable,	77 55
Total credits,	\$1,077 55

STATISTICAL INFORMATION.

Number of subscribers,	47
Number of instruments,	48
Number of operators,	2
Number of pay stations,	1
Number of subscribers on party lines,	47
Overhead system: —	
Pole line, miles,	5
Iron wire, miles,	10

TELEGRAPH COMPANIES.

ATLANTIC TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 55 Donovan Building, Lowell, Mass.

Date of incorporation: Nov. 12, 1884.

State where incorporated: Massachusetts.

Date of annual meeting: first Wednesday after June 23.

Date of organization: Dec. 22, 1885.

Date when company began to give service: Aug. 15, 1907.

Service is given by this company over its own lines in the cities of Boston, Lowell, Lawrence and Haverhill.

GENERAL OFFICERS AND OFFICIAL TITLES.

George M. Harrigan,	<i>President.</i>
John J. Hogan,	<i>Treasurer.</i>
Nathan D. Pratt,	<i>Clerk.</i>
Robert Morton,	<i>General Manager.</i>

DIRECTORS AND RESIDENCES.

John J. Hogan,	Lowell, Mass.
George M. Harrigan,	Lowell, Mass.
Nathan D. Pratt,	Lowell, Mass.

CAPITAL.

Capital authorized by charter,	\$5,000 00
Capital authorized by vote of company,	5,000 00
Capital paid in, 50 shares, par value \$100,	5,000 00

Whole number of stockholders,	3
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Number of stockholders resident in Massachusetts,	3
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The stock is held by the three stockholders in trust for the parent company.

EARNINGS.

Gross earnings from operation: —

Telegraph service,	\$1,301 97
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Total gross earnings and income,	\$1,301 97
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EXPENSES.

	Items.	Totals.
General expense: —		
Salaries of officers,		\$1,345 18
Operating: —		
Wages of operators,	\$398 27	
Wages of messengers,	242 26	
Rent, light and heat,	1,341 91	
Incidental,	169 18	
Total operating expense,		2,151 62
Total of all operating expenses,		\$3,496 80

GENERAL BALANCE SHEET.

Assets.

Office furniture and fixtures,	\$890 00
Current assets: —	
Cash on hand,	\$600 00
Supplies on hand,	1,315 17
Total current assets,	1,915 17
Total assets,	\$2,805 17
Profit and loss balance, deficit,	2,194 83
Total debits,	\$5,000 00

Liabilities.

Capital stock,	\$5,000 00
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PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Gross earnings from operation,		\$1,301 97
Operating expenses,	\$3,496 80	
Balance, deficit,		2,194 83
	\$3,496 80	\$3,496 80

COMMERCIAL CABLE COMPANY.

Location of principal business office: 112 State Street, Boston, Mass.

Date of incorporation: March 14, 1906.

State where incorporated: Massachusetts.

Date of annual meeting: March 29 (if Sunday or holiday, day after).

Date of organization: March 14, 1906.

Date when company began to give service: April 1, 1906.

Service is given by this company over its own lines in Boston and Rockport.

GENERAL OFFICERS AND OFFICIAL TITLES.

Clarence H. Mackay,	<i>President.</i>
George G. Ward,	<i>Vice-President.</i>
Edward C. Platt,	<i>Treasurer and Assistant Clerk.</i>
Frederick H. Putt,	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Clarence H. Mackay,	Roslyn, Long Island, N. Y.
George G. Ward,	New York, N. Y.
Frederick H. Putt,	Boston, Mass.

CAPITAL.

Capital authorized by charter,	\$10,000 00
Capital authorized by vote of company,	10,000 00
Capital paid in, 100 shares, par value \$100,	10,000 00
Whole number of stockholders,	4
Number of stockholders resident in Massachusetts,	1
Amount of stock held in Massachusetts (shares),	1

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Revenue from operation,		\$45,920 71
General expense,	\$2,789 08	
Operating expense,	35,588 83	
Current repair,	2,655 67	
Rented lines,	4,800 00	
Total expenses,		45,833 58
Net revenue from operation,		\$87 13
Miscellaneous income: —		
Bank interest,		225 99
Surplus for year ending June 30, 1908,		\$313 12

EARNINGS.

Gross earnings from operation: —	
Cable service,	\$45,920 71
Miscellaneous income: —	
Bank interest,	225 99
Total gross earnings and income,	\$46,146 70

EXPENSES.

General expense: —	
Postage, printing and stationery,	\$1,265 81
Miscellaneous office expenses and repairs,	1,094 52
Travelling,	8 00
Insurance,	196 59
Taxes,	224 16
Total general expense,	\$2,789 08
Operating: —	
Superintendence,	\$4,800 00
Wages of operators,	25,109 88
Rent, light and heat,	4,407 10
Advertising and canvassing,	144 00
Amounts carried forward,	\$34,460 98
	\$2,789 08

	Items.	Totals.
<i>Amounts brought forward,</i>	\$34,460 98	\$2,789 08
Operating — <i>Con.</i>		
Messenger service,	999 85	
Messenger uniforms,	128 00	
Total operating expense,		35,588 83
Current repair: —		
Instruments and batteries (maintenance),	\$2,149 46	
Apparatus and furniture,	506 21	
Total current repairs,		2,655 67
Rented lines,		4,800 00
Total of all operating expenses,		\$45,833 58

GENERAL BALANCE SHEET.

Assets.

Real estate at Rockport, office building and land,	\$4,200 75	
Electrical apparatus, equipment, office furniture, etc.,	6,000 00	
Total plant account,		\$10,200 75
Current assets: —		
Cash on hand,	\$2,290 30	
Bills and accounts receivable,	7,690 57	
Total current assets,		9,980 87
Total debits,		\$20,181 62

Liabilities.

Capital stock,		\$10,000 00
Current liabilities: —		
Bills payable,		7,602 65
Accrued liabilities: —		
Interest accrued but not due,	\$90 89	
Rentals accrued but not due,	1,500 00	
Total accrued liabilities,		1,590 89
Total liabilities,		\$19,193 54
Profit and loss balance, surplus,		988 08
Total credits,		\$20,181 62

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$674 96
Gross earnings from operation,		45,920 71
Miscellaneous income,		225 99
Operating expenses,	\$45,833 58	
Balance, surplus,	988 08	
	\$46,821 66	\$46,821 66

PROPERTY ACCOUNTS (ADDITIONS DURING THE YEAR).

Additions to real estate required for operation,	\$200 75
Total additions,	\$200 75

COMMERCIAL UNION TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 84 State Street, Boston, Mass.

Date of incorporation: Aug. 3, 1888.

State where incorporated: Massachusetts.

Date of annual meeting: fourth Saturday in July.

Date of organization: Aug. 3, 1888.

Date when company began to give service: Aug. 3, 1888.

Service is given by this company over its own lines in the following cities and towns:—

Adams,	Lenox,	Orange,
Athol,	Leominster,	Pittsfield,
Fitchburg,	Lowell,	Shelburne,
Greenfield,	Merrimac,	Wenham,
Haverhill,	Newburyport,	West Gardner,
Lawrence,	North Adams,	Williamstown.

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles A. Richardson,	. . . . .	<i>President.</i>
Charles P. Bruch,	. . . . .	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	. . . . .	<i>Treasurer.</i>
I. R. Woodside,	. . . . .	<i>Clerk and Transfer Agent.</i>

DIRECTORS AND RESIDENCES.

Charles A. Richardson,	. . . . .	Boston, Mass.
Edward J. Nally,	. . . . .	New York, N. Y.
Charles P. Bruch,	. . . . .	New York, N. Y.

CAPITAL.

Capital authorized by charter,	. . . . .	\$10,000 00
Capital authorized by vote of company,	. . . . .	10,000 00
Capital paid in, 100 shares, par value \$100,	. . . . .	10,000 00
Whole number of stockholders,	. . . . .	4
Number of stockholders resident in Massachusetts, none.		
Amount of stock held by the Farmers Loan and Trust Company of New York (shares),	. . . . .	97

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,	. . . . .	\$23,586 34
General expense,	. . . . . \$2,714 54	
Operating expense,	. . . . . 20,813 80	
Current repair,	. . . . . 9,780 45	
Total expenses,	. . . . .	33,308 79
Deficit for year ending June 30, 1908,	. . . . .	\$9,722 45

EARNINGS.

Gross earnings from operation:—	
Telegraph service,	. . . . . \$18,115 24
Cable service,	. . . . . 190 63
Amount carried forward,	. . . . . \$18,305 87

	Items.	Totals.
<i>Amount brought forward,</i>	\$18,305 87	
Gross earnings from operation — <i>Con.</i>		
Stocks and markets,	204 96	
Money transfers,	400 95	
Messenger service,	977 94	
Leased wires,	3,696 62	
Total gross earnings,		\$23,586 34
EXPENSES.		
General expense: —		
Salaries of officers,	\$1,419 17	
Postage, printing and stationery,	531 96	
Miscellaneous office expenses,	229 70	
Insurance,	69 09	
Taxes,	464 62	
Total general expense,		\$2,714 54
Operating: —		
Wages of operators and others,	\$15,865 00	
Wages of messengers,	2,571 90	
Rent, light and heat,	2,369 15	
Advertising,	7 75	
Total operating expense,		20,813 80
Current repair: —		
Repairs, overhead lines,	\$9,061 07	
Repairs, underground lines,	340 87	
Repairs, instruments and batteries,	378 51	
Total current repairs,		9,780 45
Total of all operating expenses,		\$33,308 79

GENERAL BALANCE SHEET.

<i>Assets.</i>		
Plant required for operation,		\$10,000 00
Current assets: —		
Cash on hand,	\$366 13	
Bills and accounts receivable,	1,074 31	
Supplies on hand,	118 53	
Total current assets,		1,558 97
Total assets,		\$11,558 97
Profit and loss balance, deficit,		11,217 51
Total debits,		\$22,776 48
<i>Liabilities.</i>		
Capital stock,		\$10,000 00
Current liabilities: —		
Audited vouchers and accounts,	\$12,639 38	
Salaries and wages unpaid,	137 10	
Total current liabilities,		12,776 48
Total credits,		\$22,776 48

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,	\$1,495 06	
Operating expenses,	33,308 79	
Gross earnings from operation,		\$23,586 34
Balance, deficit,		11,217 51
	<hr/>	<hr/>
	\$34,803 85	\$34,803 85

THE MARTHAS VINEYARD TELEGRAPH COMPANY.

Location of principal business office: Woods Hole, Mass.

Date of incorporation: July 20, 1900.

State where incorporated: Massachusetts.

Date of annual meeting: January 20.

Date of organization: July 16, 1900.

Date when company began to give service: Oct. 1, 1900.

Towns in which service is given by the company over its own lines: Falmouth, Gosnold, Oak Bluffs, Tisbury, Edgartown.

GENERAL OFFICERS AND OFFICIAL TITLES.

Henry G. Haddon,	<i>President and General Manager.</i>
Joseph H. Wentworth,	<i>Clerk and Treasurer.</i>

DIRECTORS AND RESIDENCES.

Frederic E. Clary,	New Haven, Conn.
Arthur L. Edgecomb,	Portland, Me.
Henry G. Haddon,	Woods Hole, Mass.

CAPITAL.

Capital authorized by charter,	\$10,000 00
Capital authorized by vote of company,	10,000 00
Capital paid in, 100 shares, par value \$100,	10,000 00

Whole number of stockholders, 2

Number of stockholders resident in Massachusetts, none.

Amount of stock held in Massachusetts (shares), none.

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Revenue from operation,		\$6,215 81
General expense,	\$1,739 38	
Operating expense,	2,136 69	
Current repair,	2,003 20	
Total expenses,	<hr/>	5,879 27
Net revenue from operation,		<hr/> \$336 54
Miscellaneous income: —		
Interest on deposits,	\$30 10	
Special deliveries, etc.,	17 36	
Total miscellaneous income,	<hr/>	47 46
Surplus for year ending June 30, 1908,		<hr/> \$384 00

EARNINGS.

Gross earnings from operation: —	Items.	Totals.
Telegraph service,	\$5,960 10	
Money transfers,	30 04	
Pole rental,	33 70	
Weather messages,	191 97	
Total gross earnings from operation,		\$6,215 81
Miscellaneous income,		47 46
Total gross earnings and income,		\$6,263 27

EXPENSES.

General expense: —		
Salaries of officers,	\$1,122 50	
Postage, printing and stationery,	124 45	
Miscellaneous office expenses,	162 69	
Travelling,	31 00	
Rent of right of way,	25 00	
Rent of land and buildings,	96 00	
Insurance,	3 75	
Taxes,	173 99	
Total general expense,		\$1,739 38
Operating: —		
Wages of operators,	\$2,261 84	
Wages of others,	250 00	
Wages of messengers,	174 45	
Rent, light and heat,	182 50	
Advertising and canvassing,	100 00	
Incidental,	49 17	
For handling Western Union business,	592 28 ¹	
For handling Postal Telegraph Company business,	288 99 ¹	
Total operating expense,		2,136 69
Current repair: —		
Repairs, overhead lines,	\$373 06	
Repairs, submarine lines,	1,630 14	
Total current repairs,		2,003 20
Total of all operating expenses,		\$5,879 27

GENERAL BALANCE SHEET.

Assets.

Overhead lines,	\$4,000 00	
Submarine lines,	5,000 00	
Equipment,	668 50	
Office furniture and fixtures,	331 50	
Total plant account,		\$10,000 00
Current assets: —		
Cash on hand,	\$924 18	
Bills and accounts receivable,	234 64	
Total current assets,		1,158 82
Total debits,		\$11,158 82

¹ Credit item (see note on page 258).

Liabilities.

Capital stock,	\$10,000 00
Current liabilities: —	
Audited vouchers and accounts,	25 00
Total liabilities,	\$10,025 00
Profit and loss balance, surplus,	1,133 82
Total credits,	\$11,158 82

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$4,099 82
Gross earnings from operation,		6,215 81
Miscellaneous income,		47 46
Operating expenses,	\$5,879 27	
Repairs and wire connections furnished by Western Union Company and Postal Company for five years previous to current year,	3,350 00	
Balance, surplus,	1,133 82	
	\$10,363 09	\$10,363 09

GENERAL REMARKS AND EXPLANATIONS.

NOTE. — “During the year \$2,000 each was paid the Western Union and Postal for wire connections and for repairs and maintenance of submarine line covering the past six years. Of this amount, \$650 was charged into current repair and the balance charged profit and loss.

“The deduction of \$881.27 from operating expense is the amount charged pro rata to Western Union Company and Postal Telegraph Company for expense of handling their business.”

NEW ENGLAND TELEGRAPH COMPANY OF MASSACHUSETTS.

Location of principal business office: 84 State Street, Boston, Mass.

Date of incorporation: April 7, 1884.

State where incorporated: Massachusetts.

Date of annual meeting: second Tuesday in August.

Date of organization: April 7, 1884.

Date when company began to give service: April 7, 1884.

Service is given by this company over its own lines in the following cities and towns: Attleborough, Brockton, Gloucester, Rockport, Salem.

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles C. Adams,	<i>President.</i>
Charles P. Bruch,	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	<i>Treasurer.</i>
L. A. Boone,	<i>Clerk and Transfer Agent.</i>

DIRECTORS AND RESIDENCES.

Charles C. Adams,	New York, N. Y.
Charles P. Bruch,	New York, N. Y.
Edward B. Pillsbury,	New York, N. Y.

CAPITAL.

Capital authorized by charter,	\$30,000 00
Capital authorized by vote of company,	30,000 00
Capital paid in, 300 shares, par value \$100,	30,000 00
Whole number of stockholders,	1
Number of stockholders resident in Massachusetts, none.	
Amount of stock held by Farmers Loan and Trust Company of New York (shares),	300

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$7,192 25
General expense,	\$1,288 15	
Operating expense,	7,102 20	
Current repair,	2,664 23	
Rented lines,	108 03	
Total expenses,	<hr/>	11,162 61
Deficit for year ending June 30, 1908,		<hr/> \$3,970 36

EARNINGS.

Gross earnings from operation: —		
Telegraph service,	\$6,749 68	
Cable service,	311 37	
Money transfers,	131 20	
Total gross earnings and income,	<hr/>	\$7,192 25

EXPENSES.

General expense: —		
Salaries of officers,	\$787 74	
Postage, printing and stationery,	129 52	
Miscellaneous office expenses,	19 76	
Damages,	20 00	
Insurance,	42 86	
Taxes,	288 27	
Total general expense,	<hr/>	\$1,288 15
Operating: —		
Wages of operators and others,	\$6,325 74	
Wages of messengers,	318 13	
Rent, light and heat,	458 33	
Total operating expenses,	<hr/>	7,102 20
Current repair: —		
Repairs overhead lines,	\$2,474 73	
Repairs underground lines,	188 50	
Repair instruments and batteries,	1 00	
Total current repairs,	<hr/>	2,664 23
Rented lines,		108 03
Total of all operating expenses,		<hr/> \$11,162 61

GENERAL BALANCE SHEET.

<i>Assets.</i>	<i>Items.</i>	<i>Totals.</i>
Plant required for operation,		\$30,000 00
Current assets: —		
Cash on hand,	\$328 62	
Bills and accounts receivable,	381 74	
Supplies on hand,	2 59	
Total current assets,		712 95
Total assets,		\$30,712 95
Profit and loss balance, deficit,		3,787 81
Total debits,		\$34,500 76
<i>Liabilities.</i>		
Capital stock,		\$30,000 00
Current liabilities: —		
Audited vouchers and accounts,		4,500 76
Total credits,		\$34,500 76

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year,		\$182 55
Gross earnings from operation,		7,192 25
Operating expenses,	\$11,162 61	
Balance, deficit,		3,787 81
	\$11,162 61	\$11,162 61

OCEAN TELEGRAPH COMPANY.

Incorporated by chapter 129, Acts of 1869.

State where incorporated: Massachusetts.

Date of organization: June 28, 1869.

GENERAL OFFICERS AND OFFICIAL TITLES.

Francis Peabody,	<i>President.</i>
Robert H. Gardiner,	<i>Treasurer.</i>
Alfred J. Mayo,	<i>Clerk.</i>

DIRECTORS AND RESIDENCES.

Francis Peabody,	Danvers, Mass.
Robert H. Gardiner,	Gardiner, Me.
Philip Dexter,	Boston, Mass.

CAPITAL.

Capital authorized by charter,	\$100,000 00
Capital authorized by vote of company,	25,000 00
Capital paid in, 250 shares, par value \$100,	25,000 00

Whole number of stockholders,	4
Number of stockholders resident in Massachusetts,	3
Amount of stock held in Massachusetts (shares),	126

NOTE. — "The company owns no property except a short piece of cable in Duxbury to the open sea, and does no business."

POSTAL TELEGRAPH-CABLE COMPANY OF MASSACHUSETTS.

Location of principal business office: 84 State Street, Boston, Mass.

Date of incorporation: April 3, 1896.

State where incorporated: Massachusetts.

Date of annual meeting: fourth Saturday in July.

Date of organization: April 3, 1896.

Date when company began to give service: April 3, 1896.

Service is given by this company over its own lines in the following cities and towns: —

Amherst,	Fall River,	New Bedford,
Attleborough,	Falmouth,	Northampton,
Boston,	Foxborough,	Springfield,
Brookline,	Frammingham,	Sturbridge,
Cambridge,	Holyoke,	Taunton,
Charlton,	Lynn,	Westfield,
Chelsea,	Malden,	Woburn,
Chicopee,	Manchester,	Worcester.
Danvers,	Natick,	

GENERAL OFFICERS AND OFFICIAL TITLES.

Arthur L. Edgecomb,	<i>President.</i>
Edward B. Pillsbury,	<i>Vice-President.</i>
Theodore L. Cuyler, Jr.,	<i>Treasurer.</i>
Charles A. Richardson,	<i>Clerk and Transfer Agent.</i>

DIRECTORS AND RESIDENCES.

Edward J. Nally,	New York, N. Y.
Charles P. Bruch,	New York, N. Y.
Arthur L. Edgecomb,	Boston, Mass.

CAPITAL.

Capital authorized by charter,	\$5,000 00
Capital authorized by vote of company,	5,000 00
Capital paid in, 50 shares, par value \$100,	5,000 00

Whole number of stockholders,	1
Number of stockholders resident in Massachusetts, none.	
Amount of stock held by Farmers Loan and Trust Company of New York (shares),	50

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$261,781 67
General expense,	\$11,613 92	
Operating expense,	246,305 28	
<i>Amounts carried forward,</i>	<i>\$257,919 20</i>	<i>\$261,781 67</i>

	Items.	Totals.
<i>Amounts brought forward,</i>	\$257,919 20	\$261,781 67
Current repair,	30,059 40	
Rented lines,	117 25	
Total expenses,	<hr/>	288,095 85
Deficit for year ending June 30, 1908,		<hr/> \$26,314 18

EARNINGS.

Gross earnings from operation: —

Telegraph service,	\$216,105 89	
Cable service,	2,641 10	
Stocks and markets,	732 50	
Money transfers,	1,937 63	
Messenger service,	2,778 21	
Leased wires,	37,586 34	
Total gross earnings and income,	<hr/>	\$261,781 67

EXPENSES.

General expense: —

Salaries of officers,	\$2,665 44	
Postage, printing and stationery,	5,813 20	
Miscellaneous office expenses,	1,769 50	
Damages,	162 77	
Rent of right of way,	120 00	
Insurance,	140 20	
Taxes,	942 81	
Total general expense,	<hr/>	\$11,613 92

Operating: —

Wages of operators and others,	\$163,226 83	
Wages of messengers,	43,670 32	
Rent, light and heat,	39,364 74	
Advertising and canvassing,	43 39	
Total operating expense,	<hr/>	246,305 28

Current repair: —

Repairs overhead lines,	\$25,195 33	
Repairs underground lines,	2,858 11	
Repairs call circuits,	353 09	
Repairs instruments and batteries,	1,652 87	
Total current repairs,	<hr/>	30,059 40
Rented lines,	117 25	
Total of all operating expenses,		<hr/> \$288,095 85

GENERAL BALANCE SHEET.

Assets.

Plant required for operation,	\$5,000 00	
Current assets: —		
Cash on hand,	\$4,816 38	
Bills and accounts receivable,	38,849 77	
Supplies on hand,	407 56	
Total current assets,	<hr/>	44,073 71
Total assets,		<hr/> \$49,073 71
Profit and loss balance, deficit,		20,732 82
Total debits,		<hr/> \$69,806 53

<i>Liabilities.</i>	<i>Items.</i>	<i>Totals.</i>
Capital stock,	\$5,000 00
Current liabilities: —		
Audited vouchers and accounts,	64,806 53
Total credits,	\$69,806 53

PROFIT AND LOSS ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Balance from previous year, . . . . .	.	\$5,581 36
Gross earnings from operation, . . . . .	.	261,781 67
Operating expenses,	\$288,095 85	
Balance, deficit,		20,732 82
	\$288,095 85	\$288,095 85

UNITED TELEGRAM COMPANY.

Location of principal business office: 26 Congress Street, Boston, Mass.

Date of incorporation: 1890.

State where incorporated: New Jersey.

Date of annual meeting: first Wednesday in November.

Date of organization: June, 1890.

Date when company began to give service: June, 1890.

Service is given by this company over its own lines in Boston.

GENERAL OFFICERS AND OFFICIAL TITLES.

Charles F. Parker,	<i>President.</i>
Harry H. Wyman,	<i>Vice-President.</i>
L. Wallace Sweetser,	<i>Secretary and Treasurer.</i>
G. L. Ellwood,	<i>Assistant Treasurer.</i>

DIRECTORS AND RESIDENCES.

Charles F. Parker,	Boston, Mass.
E. S. Bennett,	South Boston, Mass.
H. H. Wyman,	Brookline, Mass.
Stuart F. Martin,	Jamaica Plain, Mass.
L. Wallace Sweetser,	Wakefield, Mass.
Lewis C. Harris,	Newark, N. J.
Walter E. Severance,	Boston, Mass.

CAPITAL.

Capital authorized by charter,	\$500,000 00
Capital authorized by vote of company,	250,000 00
Capital paid in, 10,000 shares; par value, \$25,	250,000 00
Whole number of stockholders,	81
Number of stockholders resident in Massachusetts,	32
Amount of stock held in Massachusetts (shares),	6,154

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
July 1, 1890, .	July 1, 1920, .	Income bonds,	5	\$200,000 00
Total amount of bonds and notes,				\$200,000 00
Capital paid in,				250,000 00
Total liability for capital and loans,				\$450,000 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR.

	Items.	Totals.
Gross earnings from operation,		\$42,221 46
General expense,	\$11,945 08	
Operating expense,	9,700 74	
Current repair,	3,600 00	
Rented lines,	15,750 02	
Total expenses,		40,995 84
Net revenue from operation,		\$1,225 62
Miscellaneous income,		1,235 58
Total income above expense,		\$2,461 20
Fixed charges:—		
Interest on funded debt,		2,000 00
Surplus for year ending June 30, 1908,		\$461 20

EARNINGS.

Gross earnings from operation:—	
Stocks and markets,	\$42,221 46
Miscellaneous income,	1,235 58
Total gross earnings and income,	\$43,457 04

EXPENSES.

General expense:—	
Salaries of officers,	\$5,000 04
Wages of clerks,	3,087 00
Postage, printing and stationery,	908 46
Miscellaneous office expenses,	160 00
Travelling,	10 00
Storeroom expenses,	27 00
Rent of land and buildings,	1,586 00
Insurance,	75 00
Taxes,	668 16
General expense,	423 42
Total general expense,	\$11,945 08
Amount carried forward,	\$11,945 08

	Items.	Totals.
<i>Amount brought forward,</i>		\$11,945 08
Operating: —		
Superintendence,	\$1,800 00	
Wages of operators,	4,665 00	
Wages of others,	1,944 50	
Wages of messengers,	9 00	
Telephone charges,	91 25	
Light and power,	608 37	
Incidental,	582 62	
Total operating expense,		9,700 74
Current repair: —		
Repairs overhead lines,	\$420 00	
Repairs underground lines,	420 00	
Repairs instruments,	2,760 00	
Total current repairs,		3,600 00
Rented lines,		15,750 02
		<hr/>
Total of all operating expenses,		\$40,995 84

GENERAL BALANCE SHEET.

<i>Assets.</i>		
Tickers,	\$19,897 25	
Equipment,	9,195 00	
Franchise,	80,000 00	
Ticker rights,	316,593 53	
Total plant account,		\$425,685 78
Current assets: —		
Cash on hand,	\$5,599 50	
Funds in escrow,	20,000 00	
Total current assets,		25,599 50
		<hr/>
Total debits,		\$451,285 28
<i>Liabilities.</i>		
Capital stock,		\$250,000 00
Bonded debt,		200,000 00
Current liabilities: —		
Dividends not called for,		537 50
		<hr/>
Total liabilities,		\$450,537 50
Profit and loss balance, surplus,		747 78
		<hr/>
Total credits,		\$451,285 28

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$28,824 62
Gross earnings from operation,		42,221 46
Miscellaneous income,		1,235 58
Operating expenses,	\$40,995 84	
Interest on funded debt,	2,000 00	
	<hr/>	
<i>Amounts carried forward,</i>	\$42,995 84	\$72,281 66

	Dr.	Cr.
<i>Amounts brought forward,</i>	\$42,995 84	\$72,281 66
Depreciation of ticker rights,	28,100 47	
Unexpired insurance,	437 57	
Balance, surplus,	747 78	
	<hr/>	<hr/>
	\$72,281 66	\$72,281 66

PROPERTY ACCOUNT (DEDUCTIONS DURING THE YEAR).

Ticker rights depreciation,	\$28,100 47
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THE WESTERN UNION TELEGRAPH COMPANY.

Location of principal business office: 195 Broadway, New York, N. Y.

Date of incorporation: April 1, 1851.

State where incorporated: New York.

Date of annual meeting: second Wednesday in October.

Date of organization: April 1, 1851.

Date when company began to give service: April, 1851.

GENERAL OFFICERS AND OFFICIAL TITLES.

Robert C. Clowry,	<i>President and General Manager.</i>
George J. Gould,	<i>Vice-President.</i>
J. B. Van Every,	<i>Vice-President.</i>
Thomas F. Clark,	<i>Vice-President.</i>
G. W. E. Atkins,	<i>Vice-President.</i>
A. R. Brewer,	<i>Secretary.</i>
M. T. Wilbur,	<i>Treasurer.</i>
J. B. Van Every,	<i>Auditor.</i>
John F. Dillon,	<i>General Counsel.</i>
G. H. Fearons,	<i>General Attorney.</i>
Rush Taggart,	<i>Solicitor.</i>
H. D. Estabrook,	<i>Solicitor.</i>
B. Brooks,	<i>General Superintendent, Eastern Division, New York.</i>
C. F. Ames,	<i>District Superintendent, Eastern Division, Boston, Mass.</i>

DIRECTORS.

Thomas T. Eckert, *Chairman.*
 Robert C. Clowry,
 John T. Terry,
 George J. Gould,
 Edwin Gould,
 Jacob H. Schiff,
 Frank J. Gould,
 William L. Bull,
 Joseph J. Sloeum,
 Thomas H. Hubbard,
 James H. Hyde,
 Charles Lanier,
 J. Pierpont Morgan,
 Chauncey M. Depew,

G. W. E. Atkins,
 Henry M. Flagler,
 John Jacob Astor,
 Oliver Ames,
 C. Sidney Shepard,
 John B. Van Every,
 James Stillman,
 Thomas F. Clark,
 E. H. Harriman,
 Howard Gould,
 John J. Mitchell,
 Henry A. Bishop,
 Harris C. Fahnestock,
 Henry Walters.

CAPITAL.

Capital authorized by charter,	\$100,000,000 00
Capital authorized by vote of company,	125,000,000 00
Capital paid in, 998,171 shares; par value, \$100,	99,817,100 00
Whole number of stockholders,	14,751

DEBTS.

Bonds or notes issued, viz.:—

DATE.	When due.	How secured.	Rate of Interest (Per Cent.).	Amount.
Sundry dates since 1900, .	May 1, 1950,	Funding and real estate mortgage.	4½	\$20,000,000 00
Sundry dates since 1887, .	Jan. 1, 1938,	Collateral Trust,	5	8,645,000 00
Sundry dates since 1906, .	Nov. 1, 1936,	Stocks of other companies, etc.,	4	10,000,000 00
Total amount of bonds and notes,				\$38,645,000 00
Capital paid in,				99,817,100 00
Total liability for capital and loans,				\$138,462,100 00

CONDENSED STATEMENT OF OPERATING FOR THE YEAR (WHOLE SYSTEM).

	Items.	Totals.
Gross earnings from operation, including income from securities, ¹		\$28,582,212 09
General expense, operating expense and taxes, .	\$19,069,813 70	
Current repair and reconstruction,	4,139,357 92	
Rented lines,	1,546,181 87	
Equipment of offices and wires,	423,861 84	
Total expenses,		25,179,215 33
Total income above expense,		\$3,402,996 76
Fixed charges:—		
Interest on funded debt,		1,732,250 00
Surplus of net income above fixed charges,		\$1,670,746 76
Dividends declared,		1,714,571 50
Deficit for year ending June 30, 1908,		\$43,824 74

EARNINGS (WHOLE SYSTEM).

Traffic receipts,	\$22,292,963 14
Stocks and markets, and commercial news reports,	1,336,304 19
Money transfers,	200,787 17
Leased wires,	3,133,009 15
Total gross earnings from operation,	\$26,963,063 65
Miscellaneous income,	1,619,148 44
Total gross earnings and income,	\$28,582,212 09

¹ Gross earnings from operation in Massachusetts, \$75,256.69.

EXPENSES (WHOLE SYSTEM).

Operating and general expenses:—	Items.	Totals.
Superintendence,	\$294,564 47	
Wages of operators and salaries and wages of others,	10,829,412 78	
Wages of messengers,	1,963,977 98	
Telephone charges and commissions,	91,526 02	
Rent, light and heat,	1,165,451 04	
Incidental expenses, and amounts paid to railroads and other telegraph companies, and refunded and uncollected,	4,724,881 41	
Total operating expense,		\$19,069,813 70
Current repair to lines,	\$2,020,948 19	
Incidental and reconstruction,	1,931,440 80	
Cable repairs,	186,968 93	
Total current repairs and reconstruction,		4,139,357 92
Rented lines,		1,546,181 87
Equipment of offices and wires,		423,861 84
Total of all operating expenses,		\$25,179,215 33

GENERAL BALANCE SHEET.

Assets.

Telegraph lines, stocks owned of leased telegraph companies that are merged in Western Union Company's system, franchises, patents, etc.,	\$123,139,624 71
Stocks and bonds of leased telegraph companies received in exchange for collateral trust bonds,	8,645,000 00
Stocks of not leased telegraph companies, and other securities,	16,497,864 85
Real estate,	5,088,359 18
Supplies and material in supply departments,	1,137,475 93
Sundry accounts receivable, etc.,	2,368,746 24
Cash in treasury and in hands of agents (since remitted to treasury),	3,278,733 70
Total debits,	\$160,155,804 61

Liabilities.

Capital stock,	\$99,817,100 00
Funded debt,	38,645,000 00
Gold and Stock Telegraph Company for stocks of other companies held through lease of that company until 1981,	1,946,592 00
Sundry accounts payable, etc. (including dividend July 15, 1908),	3,755,072 14
Surplus of income prior to Oct. 1, 1881, appropriated for construction and acquisition of telegraph lines and property (in excess of the \$15,526,590 capital stock distributed in 1881 on account of such appropriations of income during the 15 years preceding),	1,598,184 03
Surplus of income subsequent to Oct. 1, 1881 (\$13,764,096.53), plus the proportion of surplus of income prior to Oct. 1, 1881 (\$629,759.91), that was not appropriated as above,	14,393,856 44
Total credits,	\$160,155,804 61

PROFIT AND LOSS ACCOUNT.

	Dr.	Cr.
Balance from previous year,		\$16,884,781 18
Revenues,		28,582,212 09
Expenses,	\$25,179,215 33	
Interest on bonds,	1,732,250 00	
Dividends,	1,714,571 50	
Appropriated for stock dividends,	2,447,100 00	
Balance, surplus,	14,393,856 44	
	<hr/>	<hr/>
	\$45,466,993 27	\$45,466,993 27

NOTE. — "The net growth of the plant was: in poles and cable, 2,831 miles; in wire, 38,231 miles; in offices there was a decrease of 907, due principally to the fact that railroad companies have closed many small telegraph offices in consequence of the enactment of laws shortening the hours of labor. At most of such places messages are accepted and telephoned to an office of this company, to be forwarded to destination.

"Of the total of 1,359,430 miles of wire at the close of the year, 485,801 miles were of copper and 873,629 of iron, — an increase in copper of 66,351 and in iron a decrease of 28,120 miles during the year, due to the substitution of copper for iron.

"The number of messages decreased 12,433,264, and the revenues of the company decreased \$4,274,194.16, due to the depression in business and to the strike of operators, which began early in August and lasted until Nov. 7, 1907. The average tolls per message transmitted by the company were the same as the previous year, but the cost was increased by the strike to such an extent that that branch of the business showed a small loss for the year. This loss ceased as soon as conditions became normal. Notwithstanding the abnormal expense during the strike, the expenses for the year were reduced \$1,352,980.87, which left the net loss in revenue \$2,921,213.29, as compared with the previous year. The decline in gross receipts is proportionately less than that which followed the panic of 1893, the low receipts of which period were succeeded by many years of growth. . . . This it is hoped will be the case in the present depression, and there are at this writing indications of improvement manifested by demands from many different sections of the country for help to handle increasing traffic.

"For the past six years liberal appropriations have been made for the maintenance of the company's lines. The plant is, therefore, in good condition. As stated in my last annual report, much of the work of improving the property of the company had been completed before the close of the fiscal year 1906-07. There has followed, as anticipated, a material decline in the demands for such work, which has permitted a substantial reduction in expense."

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